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PANTOLOGIA.

VOL. XII.

U — ZYT.

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PANTOLOGIA.

A

NEW CYCLOPÆDIA,

COMPREHENDING
A COMPLETE SERIES OF
Essays, Treatises, and Systems,
ALPHABETICALLY ARRANGED;
WITH A GENERAL DICTIONARY OF
ARTS, SCIENCES, AND WORDS:
THE WHOLE
PRESENTING A DISTINCT SURVEY OF
Human Genius, Learning, and Industry.
ILLUSTRATED WITH
ELEGANT ENGRAVINGS;
THOSE ON NATURAL HISTORY BEING FROM ORIGINAL DRAWINGS BY EDWARDS AND OTHERS, AND BEAUTIFULLY COLOURED AFTER NATURE.

BY JOHN MASON GOOD, ESQ. F.R.S.
MEMBER OF THE AMERICAN PHILOSOPHICAL SOCIETY, AND OF THE LINNEAN SOCIETY OF PHILADELPHIA;
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MR. NEWTON BOSWORTH,
OF CAMBRIDGE;
ASSISTED BY OTHER GENTLEMEN OF EMINENCE, IN DIFFERENT DEPARTMENTS OF LITERATURE.

VOL. XII.

U — ZYT.

LONDON:
PRINTED FOR G. KEARSLEY; J. WALKER; J. STOCKDALE; R. LEA; E. JEFFERY; CROSBY AND CO.; SHERWOOD, NEELY, AND JONES; SUTTABY, EVANCE, AND CO.; J. BLACKLOCK; W. LOWE; J. BOOTH; J. RODWELL; BELL AND BRADFUTE, EDINBURGH; BRASH AND REID, GLASGOW; AND M. KEENE, DUBLIN.

1813.

PANTOLOGIA.

U. V.

U or u, the 20th letter and 5th vowel of our alphabet, is formed in the voice by a round configuration of the lips, and a greater extrusion of the under one than in forming the letter o, and the tongue is also more cannulated. The sound is short in *curst, must, tun, tub*; but is lengthened by a final *e*, as in *tune, tube*, &c. In some words it is rather acute than long; as in *brute, flute, lute*, &c. It is mostly long in polysyllables; as in *union, curious*, &c. but in some words it is obscure, as in *nature, venture*, &c. This letter in the form of V, or v, is properly a consonant, and as such is placed before all the vowels; as in *vacant, venal, vibrate*, &c. Though the letters v and u had always two sounds, they had only the form v till the beginning of the fourth century, when the other form was introduced, the inconvenience of expressing two different sounds by the same letter having been observed long before. In numerals V stands for five; and with a dash added at top, thus $\bar{V}$, it signifies 5000. In abbreviations, amongst the Romans, V. A. stood for *veterani assignati*; V. B. *viro bono*; V. B. A. *viri boni arbitratu*; V. B. F. *vir bonæ fidei*; V. C. *vir consularis*; V. C. C. F. *vale conjux charissime, feliciter*; V. D. D. *voto dedicatur*; V. G. *verbi gratia*; Vir. Ve. *virgo vestalis*; VL. *videlicet*; V. N. *quinto nonarum*.

VABRES, a town of France, in the department of Aveiron. Though an episcopal see before the revolution, it is little better than a village; but has some manufactures of serges, dimities, and cottons. It is seated at the confluence of two small rivers that fall into the Tarn, 30 miles S. E. of Rodez, and 32 E. of Alby. Lon. 2. 55 E. Lat. 43. 57 N.

VA'CANCY. *s.* (from *vacant.*) 1. Empty space; vacuity (*Shaks.*). 2. Chasm; space unfilled (*Watts*). 3. State of a post or employment when it is unsupplied (*Ayliffe*). 4. Time of leisure; relaxation; intermission; time unengaged (*Watts*). 5. Listlessness; emptiness of thought (*Wotton*).

VA'CANT. *a.* (*vacant*, Fr. *vacans*, Lat.) 1. Empty; unfilled; void (*Boyle*). 2. Free; unencumbered; uncrowded (*More*). 3. Not filled by an incumbent, or possessor (*Swift*). 4. Being at leisure; disengaged (*Clarendon*). 5. Thoughtless; empty of thought; not busy.

To VA'CATE. *v. n.* (*vaco*, Latin.) 1. To annul; to make void; to make of no authority (*Nelson*). 2. To make vacant; to quit possession of. 3. To defeat; to put an end to (*Dryden*).

VACA'TION. *s.* (*vacatio*, Latin.) 1. Intermission of juridical proceedings, or any other stated employments; recess of courts or senates (*Cowell*). 2. Leisure; freedom from trouble or perplexity (*Hammond*).

VA'CCARY. *s.* (*vacca*, Latin.) A cowhouse; a cow-pasture (*Bailey*).

VACCINATION, in medicine, the process of inoculating a person with the virus of the disease, called vaccina, or cow-pox, in order to render him incapable of being infected by the small-pox; thus employing a milder disease as an antidote to a severer.

This may be regarded as one of the most important discoveries of modern times, and although strenuously opposed and decried by individuals in most countries, has met with all the support and countenance from all the governments of every part of the globe to which it is entitled. Under the article INOCULATION we have entered at some length into the history and praxis of this admirable preservative, and have cursorily examined into the testimonies in its favour. That article, however, has been written for more than three years from the present time: in the course of which period vaccination has been tried upon a much more extended scale, and its effects have been examined with still closer precision, and we are happy to add, with more philosophical coolness. One of the best papers that has been given to the world by the French Imperial Institute is an article upon this subject, drawn up by three of its brightest ornaments, M. M. Berthollet, Percy and Halle, and read August 17, 1812. It has since been published, on account of its national, or rather its universal, importance in the Moniteur, and we cannot forbear presenting our readers with the following translation of that part of it which chiefly examines and replies to the general observations which in different countries have been advanced in opposition to it. These observations are put in the form of six successive queries; each of which receives its proper answer.

I.—Do the fever and the general eruption which follow the inoculation for the small-pox, but do not appear after vaccination, constitute a necessary purification of the system, the want of which may lead to dangerous consequences?

II.—Do the facts observed demonstrate that the cow-pox, introduced into the system, is of such a nature as to produce eruptions, or accidents, which ought to be ascribed to the difficulty, the imperfection, or the want of eruptions?

III.—Is the virus introduced by vaccination of such a nature as to produce immediately, that is, during the development of the natural effects of vaccination, fatal accidents?

The first two of these queries are answered in the affirmative; the third in the negative. We must pass by the train of argument, though highly ingenious and conclusive, in order to notice, in a somewhat detailed manner, the three questions by which these are succeeded, and which are of considerably more practical importance.

IV.—Is the virus introduced by vaccination of such a nature as to produce, even after its operation has terminated favourably, diseases, more or less severe, and which may even prove fatal?

The solution of this question is difficult, because our investigation is of necessity interrupted by a great number of uncertainties.

It is certainly difficult to establish, that a virus, introduced into the body, and capable of rendering it inaccessible to the small-pox contagion, has not the power of producing any other change which can affect the health. Such a consequence can only be the result of a number of observations, so great, that its disproportion with the contrary observations must prevent us from ascribing them to any thing else but causes absolutely unconnected with the introduction of the virus.

But the observations in support of a contrary opinion must be equally difficult to obtain. If a disease appear after vaccination, in order to show that it can be ascribed to no other cause, we ought to know what was the state of the subject before vaccination, and whether his constitutional or hereditary temperament did not prepare him for those maladies which have taken place. We must be able to shew that after vaccination he has not been exposed to causes capable of producing these diseases. We ought likewise to inquire whether the source from which the cow-pox matter was derived was infected with any foreign ferment. And finally, as in all ages and all circumstances of life various diseases appear which cannot be assigned to any known cause, those which succeed vaccination ought, in order to be ascribed to it, to show such a character of affinity with each other as to indicate their common origin, and offer in their development a connexion more or less sensible with the primitive effects of vaccination to which they succeed.

It is therefore requisite to admit, in opposition to the advantages ascribed to vaccination, those observations only which are well authenticated, and the details of which are sufficiently complete to enable us to appreciate their value.

Nevertheless, if the number of facts alleged were very considerable, as it would be impossible in such a case to ascribe them to mere accident, they would in a great measure supply the place of exact observations, and would produce a certain degree of probability in their favour.

By attending to all these particulars we shall endeavour to give an answer to the question proposed.

We shall begin with the observations which have been given as proofs that there exists diseases which owe their origin to vaccination.

Among those that have been published, or that have come to our knowledge, there are very few which, considered separately, have the character of exact observation; and not one possesses the conditions necessary to fix the relation of the malady noticed to the previous vaccination.

Out of eleven observations that have been particularly communicated to us, and which, from the precision with which the facts were announced, as well as the nature of the evidence of those who communicated them, seemed to deserve particular attention, we have had it in our power to verify seven. All of these seven were formally and authentically denied by ocular witnesses, most assiduous, and consequently best acquainted with the facts, either from situation, or the interest which attached them to the children who were the subject of these observations. We can only suppose that the persons, who communicated to us these observations, persons well informed, and without any motive to deceive, were led into error by false reports concerning things which they had not been able to see with their own eyes. After this it was natural for us to suspect the authenticity of the other facts which had come to our knowledge by the same means, though we had it not in our power to verify them by actual inquiry.

A fact reported to the medical society of Grenoble has been mentioned, and it is advanced in the work of M. Chappon, as a proof of the bad effects of vaccination. A child after vaccination had the face covered with pimples, which were succeeded by scabs that gave the face a hideous appearance. This was followed by an anasarca, and the case ended fatally. Notwithstanding the want of details in this case, it is easy to perceive in it that eruption so familiar to infants, and known by the vulgar name of *croute laiteuse (crusta lactea)*. Its appearance after vaccination does not prove that it had any thing in common with it. We frequently see the suppression of such eruptions produce very severe symptoms without the presence of vaccination, commonly either in the head or the organs of respiration.

The little exactness in the other observations which we might examine, renders it impossible to admit them as proofs in a discussion like the present.

We have met with strangers to the art of medicine, especially parents, who have assured us that their children, after having been carefully and successfully vaccinated, experienced several inconveniences, sometimes eruptions, sometimes a weakness of health to which they had not been subject before vaccination. These symptoms in some cases obliged them to have recourse to blisters and issues in order to remove them. It was impossible for us to make ourselves so well acquainted with the origin of these facts as to be able to judge how far the allegations were well founded; but without rejecting them altogether, we may say that all the children, and even adults, that we have had an opportunity of vaccinating ourselves, or that we have seen vaccinated, never exhibited any such symptom.

There is a circumstance which we observe frequently, and to which we ought to attend particularly, while discussing the present question. We often see an accidental impression, an emotion, a fall, occasion the development of a disease, to the nature of which that occasional cause is obviously a stranger. The small-pox itself often appears after such accidents, and in other cases they have occasioned violent fevers or other maladies to which a disposition seems to have pre-existed, and only required an occasion to call it into action. Is it not also possible, that in circumstances which we can neither determine nor foresee, vaccination may give occasion to the appearance of a malady without being its cause, and thus bring about what any other commotion would have done, experienced at the same time? In that case there would be nothing in such diseases connected with vaccination, or proceeding from the cow-pox virus.

Since then there is not one of the observations, collected hitherto, which can of itself serve as a proof of the opinion which we are examining, it remains for us to see whether taken collectively their number is such, compared with that of the cases whose history is known, as to give some solidity to the objection.

The collections to which we have had recourse already, in order to give an answer to the other questions, will still furnish us with numerous facts to satisfy this.

The correspondence of Paris, besides the facts which we have noticed above, furnishes the following: erysipelas in the arm in the proportion of one case to 10,000; suppurations continuing in the cow-pox, in the proportion of one to 10,000; and these are only local accidents, particular to the parts on which the inoculation was performed. As to general accidents they have only been observed when from particular objects the number of punctures has been very much increased; as when they have amounted to 30, 40, 50, or even to 60. These accidents have been fever and convulsions, which did not in any instance terminate fatally. The cases collected by the society of Paris are all such as have exhibited the characteristic progress of true cow-pox, an observation of more importance than has always been supposd.

The facts furnished by the Bibliotheque Britannique afford us the following results. We shall notice those only which have been announced with so much precision as to give us an exact idea of the case.

In 1800 M. Odier announced at Geneva that out of 1500 persons vaccinated not one accident had occurred.

Dr. Anderson writes, in 1804, from Madras, to the Jennerian Society of London, that the number of vaccinations performed by the British and Indian physicians on English, Portuguese, Brahmin, Malabar, Gentoo, Mahometan, Half-cast, Pariah, Maratta, Canadian, and Rajaput subjects, amounted to 145,848; and that in none of these cases had a single accident been observed. This enumeration was made in 1803, and published in 1804 by the government of Madras.

In 1806 the Jennerian Society of London, in consequence of rumours propagated respecting vaccination, as if it occasioned various dreadful diseases till that time unknown, was induced to make an exact examination. The result of this, comprehended in twenty-two paragraphs, gives in paragraph twenty-one the following statement: the disease produced by vaccination is in general slight, and without bad consequences. The cases contrary to this conclusion are in small number, compared with the total number of cases, and may very naturally be ascribed to the constitution, or the peculiar disposition of the individuals who have exhibited the exceptions.

In 1807 the Society of Surgeons in London published another report, more precise; and in which they show the greatest reserve with respect to the consequences to be drawn from the results obtained. We have already said, in speaking of the eruptions following vaccination, that there were only sixty-six examples of them among 164,361 persons vaccinated; twenty-four erysipelatous affections only were observed out of the number sixty-six: and among these we must reckon the only three deaths which followed vaccination, and which have already been noticed. All this is the result of the answer of 426 correspondents, whose testimony was solicited by a circular letter.

In another place mention is made of the same erysipelatous cases, probably comprehended under the twenty-four which have been just mentioned. The disease is ascribed to the too great depth of the incisions, by means of which the cow-pox matter had been pushed too far below the skin, instead of being introduced between it and the epidermis. Other observations may give some probability to this presumption, which we shall not attempt to examine here.

At Aleppo, the English consul, Mr. Barker, has succeeded in familiarizing the people to vaccination: 600 were vaccinated in 1806, without observing a single disagreeable accident to follow.

In 1803 the Spanish government undertook the noble and generous enterprise of sending out an expedition, which terminated in 1806. The sole object of this expedition was to convey to all their American and Asiatic possessions the new means of preserving the colonies against the ravages of the small-pox.

A certain number of children was embarked, who were to be vaccinated successively during the voyage. In this manner the cow-pox virus was transported to the Canaries, to Porto Rico, to the Caraccas, to Guatimala, to New Spain, to the Philippine islands, to Macao, to Canton, to the islands of Visaye, where a hostile nation was so struck with this act of generosity on the part of the Spaniards as immediately to lay down their arms. The colonists of St. Helena, who had hitherto refused the cow-pox matter from their own countrymen, received it from the Spaniards. The provinces of Terrafirma, of Carthagena, of Peru, &c. likewise received the cow-pox matter, which was even found indigenous near Puebla-de-los-Angeles, not far from Valladolid, and in the Caraccas. The viceroy of New Spain has attested that out of 50,000 individuals vaccinated in his government not a single unfavourable accident had come to his knowledge.

At Echaterinoslaff, the Duke of Richelieu, governor of the Crimea, assures us that out of 7065 individuals vaccinated in six months, not a single accident intervened, except one, in which the small-pox appeared the day after vaccination.

Finally, in 1810, M. Curioni, minister of the interior at Milan, wrote to M. Sacco that as far as his information went, not a single instance had occurred of small-pox appearing upon individuals that had been vaccinated, and no disease whatever had followed the process.

It appears to us that the small number of unfavourable observations which have been collected, and among which we must not include those not well authenticated, and which depend upon assertions destitute of proof, disappear entirely before such a mass of facts.

V.—Supposing that inoculation for the small-pox has the advantage of sometimes favouring the cure of certain chronical diseases, is this advantage peculiar to it, and ought it to ensure it a preference over vaccination?

This question does not present fewer difficulties than the preceding.

In speaking of the diseases, the origin of which has been referred to vaccination, we might have observed that the same reproach had been thrown against the small-pox, and that not without some reason. Not to mention former authors suspected of partiality, we shall satisfy ourselves with referring to the authors of the Bibliotheque Britannique, who have given some instances. Other facts of an opposite nature have been alleged, showing that inoculation is an epoch of an advantageous change in the constitution, by the cessation of various infirmities, and the confirmation of the health and constitution of the person inoculated.

These advantages have been ascribed either to the perfection of the eruption, and the regularity of the general commotion which accompanies it, or regarded as the effect of the suppurations prolonged in the place where the inoculation was performed; a phenomenon which has been imitated by means of a supplementary suppuration, induced by blisters when the circumstances of the case seemed to require it. It has been conceived that these evacuations destroyed the causes of the diseases formerly existing, and in the midst of which the small-pox had made its appearance.

Observers will not consider it as a contradiction to say that a commotion excited by the introduction of the matter of small-pox may produce results that seem diametrically opposite to each other. These effects do not appear contradictory, but because they vary according to the disposition and the strength of the subjects who receive the virus, and according as the essential phenomena of the malady, which this virus occasions, take place with more or less violence, regularity, or perfection. The fact exists. The only conclusion, which in our opinion can be drawn, is that these effects depend upon general laws, which it is not our business here to explain, and that they must not be regarded as a specific property, which, if it did exist, could not give birth to consequences so different.

We must, nevertheless, acknowledge, that however striking the observations may be, they do not lead to a striking demonstration. Hence, when any person says that inoculation favours the cure of a particular disease, we must restrict the proposition to mean nothing more than a simple expression of the particular fact observed. A person was afflicted with a chronic disease, from the knowledge of the character and progress of which we could not expect a speedy cure. This person was inoculated, and soon after the cure took place in a manner quite unexpected. Such is the fact. To draw as a consequence that the inoculation was the cause of the cure, it would be necessary that analogous instances had either always, or at least very frequently, occurred; otherwise the coincidence may have been entirely accidental.

Examples are given of obstinate, even hereditary ulcers, of cachexy, scurvy, eruptions, &c. cured in consequence of inoculation. The character of those who have attested these facts does not permit us to call them in question. We readily admit them; but to prove that these advantages ought to establish a preference for inoculation with the small-pox matter over vaccination, it would be at least necessary to prove that vaccination has not been followed by equally fortunate consequences; but the very contrary fact results from the observations collected by the correspondence of Paris, and from several cases announced in the works extracted by the authors of the Bibliotheque Britannique. The variety of facts announced by the correspondence of Paris is so great that it might even lead to some scepticism. We shall therefore only notice those relations which are given by persons entitled to draw our attention, and those the details of which contain some interesting particulars. Without attempting to draw any consequences from them, we shall simply present a short statement.

Mr. Richard Dunning, of Plymouth, in a work published in London in 1800, entitled Some Observations on Vaccination, &c. when speaking of the effects of vaccination on the health, says, that he has generally observed the health improved by vaccination, and he gives two instances: the first a young girl, daughter of a consumptive father, subject to vomiting, and continually labouring under oppression, with a cadaverous aspect spotted with livid blotches. After a fortunate and successful vaccination, she in a few months recovered the best possible state of health. The second example was a child two years of age, naturally delicate, recovering from an inflammation of the breast, but still pale, very feeble, and oppressed. This child, after vaccination, speedily recovered strength, acquired a good habit of body, a free respiration, and an excellent state of health. M. Maunoir, of Geneva, on this occasion adds another instance: a child, whose arm was covered with dartrous eruptions, which inflamed during the influence of the cow-pox inoculation, and assumed the appearance of as many cow-pocks. After the vaccination was over this child got quit of the eruption entirely. The same person affirms that he has observed, even after false vaccination, a sensible improvement in the health of delicate infants.

Similar results have been announced in the Spanish expedition, with an intention to publish them.

Dr. Sacco, in his treatise Della Vaccinazione (Milan, 1809), affirms, that when vaccinating infants affected with palsy in the arms or lower extremities, troubled with chronic diseases of the glands, &c. he made a great number of punctures on purpose, to the amount of thirty or forty: that some of these patients were perfectly cured, and that the health of others was considerably improved.

M. Barrey, of Besançon, observes that vaccination had been performed, in 1804, in three villages belonging to his department, on 141 infants under twelve years of age, constituting more than one half of all the children under that age in the place. In 1809 no fewer than 134 of these children enjoyed perfect health, seven alone having died of different diseases; but of the children that had not been vaccinated no fewer than forty-six were dead, though no small-pox had visited the country during the period. If under this last number be only included the children that existed in 1804, and not those born between that period and 1809, we must conclude that vaccination had rendered the children less susceptible of other diseases; but M. Barrey's observation is not sufficiently precise to enable us to estimate its importance.

The facts contained in the correspondence of Paris present themselves in a much greater number. If we refuse to admit all these cures to be owing to vaccination, we shall at least allow the coincidence of the cures with vaccination. Even in that case the great number of facts must produce at least a suspicion that vaccination had a useful effect in these cases, and give us a certainty that at least it was not injurious.

The names of the observers, the places where the observations were made, the kind of observations, are marked with precision in the notes which have been put into our hands. A considerable number enter into details, both respecting the phenomena and the methods employed; the number of punctures made in order to induce a more considerable commotion, and to render it more general and more efficacious.

We ought to remark here more particularly the maladies which affect the organs and functions which belong to the lymphatic system. On that account we shall begin with them. Fourteen observers have given a great number of examples of the crusta lactea disappearing after vaccination; sometimes after a suppuration of the cow-pox continued for twenty-seven days. Seven observers have sent a great number of observations, two of which are accompanied with details, stating the termination of dartrous affections spread over different parts of the body, and especially the arms, after vaccination. In one of these cases the cure was preceded by a violent inflammation round the cow-pox, and by a suppuration kept up for a month. Eighteen observers have given an account of chronic and obstinate opthalmias in scrofulous children cured by vaccination. Eight of these observations are detailed. In several cases the punctures made amounted to fifteen or twenty. Some were made in the nape of the neck. In most of them the suppurations were long continued; sometimes they were succeeded by blisters: but in every one of the cases the same means had been employed before vaccination without any effect. Twelve observers have given numerous facts relative to the termination of scrofula after vaccination. Eight of these are detailed. In one the scrofula was complicated with opthalmia. Sixteen punctures were made in the limbs. On the seventh day the child opened its eyes, and was capable of bearing the light. The inflammation of the punctures was violent: the inguinal glands subsided, the scrofulous tumours disappeared, and the cure was complete; but it was thought proper to endeavour to render it still more secure by a cautery performed on one of the limbs. In another case the scrofulous tumours were open, they discharged an unhealthy pus, and the flesh was pale and fungous. During the progress of the cow-pox the edges of the ulcers became red, and the flesh firm; the suppuration became less abundant, and less watery; much of the humours was drawn to the vaccinated arm; the scrofulous tumours healed in the course of a month; the cow-pox continued to suppurate during three months, and then the cure was complete.

Since the introduction of vaccination into the department of Mount Blanc, M. Caron, physician of Annecy, affirms that the number of scrofulous diseases has sensibly diminished; and M. Bacon, physician at Falaise, that in the hospital for children, formerly filled with scrofulous cases, no such disease is now to be found. Four observers sent various observations, five of which are very detailed, and have for their objects cases of rickets, not indeed cured, but modified in a remarkable manner, and the progress of which was either stopped, or sensibly retarded, by vaccination. The power of walking recovered, strength increased, and the solidity of station re-established, were the most sensible effects that resulted; and in these cases the numerous punctures along the spines were the means by which they flattered themselves with having obtained success. Three observers have spoken of the tinea capitis. One of the observations is detailed, and gives an account of a tinea of a yellow colour, yielding a copious yellow humour, of the consistence of honey. Twelve punctures were made upon the head itself. When the vaccinal crusts fell off, the crusts of the tinea dried up, fell off, and the cure was complete. Five observers furnish numerous facts respecting vaccination performed on patients labouring under nervous disorders. Five of these are detailed. A megrim which continually tortured a young man of fourteen years of age, for several years, vanished after the suppuration of the cow-pox. Daily convulsions, during ten months, in a child of twenty months, which had not been alleviated by medicine, became less violent during the progress of vaccination, and afterwards disappeared altogether. Various convulsive diseases, three of which were epileptic, were suspended during the progress of the cow-pox. Afterwards they continued to recur, but at longer intervals. Three of them, one of which was hereditary, ceased altogether. In one that had convulsions every day, the vaccination was performed during sleep, because it would have brought on a fit if the patient had been awake. The epilepsy disappeared the ninth day after the vaccination. In him, who was afflicted with an hereditary epilepsy, and who was cured, vaccination was performed by incision, and the pustules were converted into an ulcer. Ten observers furnish various observations, four of which are detailed, and relate to periodical and obstinate fevers, such as quartans, double tertians, and quotidians. They were cured by vaccination. Two quotidians, with which young men of twenty-eight were afflicted, had lasted for ten months; a double tertian, in a child of three years, had lasted three months. They ceased after vaccination. In four persons afflicted with intermittents, and vaccinated, the cow-pox appeared only upon one, and he alone was cured.

Several other observers, to the number of fourteen, have furnished various remarkable facts respecting different other diseases. In an infant, a year old, a palsy of the left arm, which had lasted two months, disappeared a month after vaccination, performed by making six punctures in the diseased arm. A great number of violent coughs have been suspended, moderated, or cured. The consequences of suppressed measles, namely, a dry cough, fever, and diarrhœa, were cured by a cow-pox induced by twenty punctures, during the suppuration of which a strong fever and miliary eruption occurred. A violent pain in the joint of the left thigh, with which a child of nine years of age was afflicted, with a threatening of spontaneous luxation of the limb, was treated by means of eighteen punctures round the diseased joint. Sixteen pox, the aureolas of which were confluent, occasioned fever, and then suppurated. Soon after the pain of the joint disappeared, and the cure was complete. A white swelling of the knee in a child of eight years of age, and a deafness which had increased for eighteen months in a child of six years of age, were both cured by vaccination.

Such are the facts which we have collected respecting the diseases existing at the time of vaccination, and cured by that process. We have noticed those only which are related with precision. We do not think that they ought to be always considered as cures due to vaccination. Separately taken, we do not see in them any thing else than a coincidence between the time of cure and vaccination; but taken collectively, we think that the number of facts, and the circumstances accompanying those which we have particularly noticed, give at least a presumption in favour of vaccination, more than sufficient to counterbalance the facts which have been alleged in favour of the small-pox, in what way soever that disease is communicated. We acknowledge, at the same time, that a comparison between vaccination and inoculation for the small-pox, in this point of view, cannot be fairly made, because a much greater number of cases of the former than of the latter have been given to the public. Vaccination, under the special protection of government, has become the object of a regular and active correspondence, in which few facts have escaped observers, only in danger of being led astray by their zeal. Inoculation, on the other hand, but little favoured by government, was become the object of enterprises, in which a spirit of cupidity was much more prevalent than a spirit of observation.

It will be asked, perhaps, whether, if we admit an equality of advantages in favour of vaccination and inoculation, considered as a remedy for different diseases, it would not be of advantage to preserve the inoculation for the small-pox as a means of utility in certain situations.

We answer, that in such a comparison we ought not to leave out the dangers of a contagion, subtile and persevering like that of the small-pox, compared with the virus of the cow-pox, which can only be communicated immediately, because the least alteration destroys its properties. We ought also to reckon for something the hope at present entertained of being able to destroy the small-pox altogether. Could houses for inoculation, though established under the care of the police, be subjected to laws so severe, and to a sequestration so exact, as to prevent completely the spreading of the small-pox from them, something might be said in its favour; but whoever considers the nature of man, and the state of society, must be convinced of the impossibility of securing any such object. In our opinion, even admitting vaccination and inoculation to be equally efficacious in removing other diseases, the balance in favour of vaccination is so strong that it is impossible to hesitate one moment about preferring it.

VI.—How far can we depend upon the preservative efficacy of the cow-pox, compared with the same advantage resulting from the small-pox, natural or inoculated? What consequences follow from this, properly considered, in the one or the other virus?

Nobody disputes the power of the cow-pox to preserve from the small-pox: and this question, which at the commencement was the most important of all, has now become only secondary to various others that have been put, and most of which we think we have already answered. At the same time, to this question must be referred a variety of other particulars of considerable interest, such, for example, as the distinction between the true and false cow-pox, the eruptions that have been confounded with the small-pox, the changes introduced in the bills of mortality by the introduction of the cow-pox, the hopes of destroying the small-pox, or of driving it out of the civilized world.

The idea of the faculty of preserving from the small-pox divides itself into two questions. One may be thus stated: Will an individual, after being vaccinated, if he be placed in a situation proper to produce the small-pox, and which usually produces it, continue exempt from that disease? The solution of this question can only be obtained by a multitude of experiments; and that solution will give, then, not absolute certainty, but degrees of probability proportional to the number of experiments undertaken to resolve the question.

The other question is this: Is it impossible for a vaccinated person to be infected with the small-pox? Experience cannot decide, in the affirmative, the question when thus stated; but a single observation is sufficient to decide it in the negative. If that observation does not exist, the question must continue insoluble; because, in order to resolve it, we must be acquainted with the nature of the virus of small-pox and of cow-pox, with all the circumstances which are capable of excluding or producing contagion, and with the peculiar dispositions which prevent men from contracting it: all of them things absolutely unknown to us.

We must therefore confine ourselves to the first of these questions, and inquire into what confidence we may repose in the preservative power of the cow-pox. Such is the nature of the question to be resolved. We thought it necessary to fix its nature with precision, before proceeding to collect, as we have done with the other questions, the positive elements of its solution. Let us establish, in the first place, the nature of the facts which ought to constitute these elements.

It is obvious, in the first place, that we ought to exclude all those in which the characters of the cow-pox have not been ascertained. Some persons have considered the difference between the true and false cow-pox as a subtilty; but we answer, that when the characters, taken from the epoch of development of the form and appearance of the pock, of the nature of the humour contained in it, of the manner of its desiccation, and of the mark which remains after it has dropped off, are so distinct from each other, as in the true and false cow-pox: when to this difference is joined the determination of the circumstances upon which the failure of vaccination usually depends, as, for example, the too late period at which the virus has been taken, the changes in the cow-pock which have occasioned the mixture of pus with the true limpid liquor of the cow-pock—when these circumstances have been accurately observed, no farther ambiguity remains, and the distinction between the two kinds of pock is perfectly established, and may be easily determined.

This difference was established in consequence of errors committed in the first experiments. At Paris we were in possession of the false cow-pox matter, and were not acquainted with the effects of the true till Dr. Woodville made a journey to France, and naturalized among us the true matter. At Geneva false cow-pox matter imposed upon the physicians, and disappointed their hopes during twenty-one months, till, in May, 1800, the virus sent by Dr. Pearson succeeded completely.

The different characters of the true and false cow-pox matter have been already pointed out in the report inserted in the fifth volume of the Physical and Mathematical Memoirs of the Institute. They have been repeatedly published by the central committee of the society of Paris; they are described in several parts of the Bibliotheque Britannique, and in various other publications. Dr. Sacco has given at the end of his work very good plates, where both the true and the false cow-pock are represented.

Besides this, Dr. Sacco, endeavouring to fix the time when the cow-pox may be usefully communicated, has determined by experiment the relation between the probability of success, and the successive days in which the virus has been collected. According to his observations, supposing that the cow-pock begins to appear on the third day, as usually happens, the success may be considered as certain if the virus be taken between the fifth and eighth day, reckoning from the time of the puncture; or between the third and sixth day, reckoning from the appearance of the pock. He found that when the matter was taken on the sixth day from the appearance of the pock, out of 100 punctures, ninety-five succeeded; when on the seventh, ninety-two; when on the eighth, eighty-eight; when on the ninth, eighty-five; when on the tenth, eighty; when on the eleventh, fifty; and when on the twelfth, only from ten to fifteen. Besides this, the longer time elapses before the matter be extracted from a pock, the more likely is the pock to suppurate, and be converted into an ulcer. M. Sacco recommends, likewise, in order to be more certain of the efficacy of the matter, to avoid opening the pock too near the centre where the puncture was made, but to take the matter from as nearly as possible the outer edge of the pock, where it is more uniformly pure and limpid. Notwithstanding the various ingenious modes that have been contrived to transport the matter from one place to another, the most certain method of vaccinating, when it can be done, is to take the matter out of one arm, and immediately introduce it into another.

A second order of facts which ought to be excluded from the comparison, consists in observations of eruptive diseases, distinguished by the name of the small-pox, but which from their characters belonged evidently to the chicken-pox, or to some anomalous eruption, which have but a faint resemblance in form to the small-pox, but are in other respects quite different. Such eruptions show themselves every day upon children who have had the small-pox; and when they appear before that disease, they do not prevent it from infecting the patient. An attentive observer can easily distinguish such eruptions. The small-pox have a regular progress which cannot be mistaken; and when they are confluent they can be still confounded with other eruptions, which are usually exempt from all danger, and even from severe illness. Every observation then, which does not give us the essential characters by which the small-pox is distinguished from other eruptive diseases, and in which we do not find the fever of the commencement of the disease, the eruption, the suppuration, the fever of intumescence which accompanies it, and the desiccation—every such observation cannot come into comparison with the observations in favour of the present question.

There is a third order of facts which cannot be admitted into the comparison of which we speak; we mean those cases in which a true small-pox makes its appearance during the time of vaccination, at an epoch when we must suppose that the infection was caught before the cow-pox could exert its preventive powers. This point has been discussed in the first report to the Institute. We have already, in the memoir, given several examples of it, in speaking of the eruptions and diseases ascribed to the cow-pox. On this point Dr. Sacco has made some curious experiments, to determine the precise time when the small-pox may still appear after vaccination. Supposing the cow-pox to appear on the third day after the puncture, the inoculation for the small-pox performed between the first and fifth day occasions the appearance of the small-pox between the seventh and eleventh day. Inoculation performed on the sixth or seventh day occasioned a slight inflammation of the part punctured, without any general eruption. Either no pox appeared over the punctures, or if they did they speedily dried up. Inoculation performed from the eighth to the eleventh day produced a slight alteration at the place of the puncture, seldom a pock, or at least it very speedily dried up. Inoculation with small-pox matter being performed on sixteen infants between the eleventh and thirteenth day after vaccination, three of them only exhibited a slight redness at the place of the puncture, while the thirteen others had no symptoms whatever. If the formation of the cow-pock be later than the third day, as happens sometimes, in that case the possibility of the small-pox infection will be extended to a time proportionally longer.

These details appeared to us necessary, in order to show to what degree of exactness observations on the preservative power of the cow-pox have been carried, and to show that the distinctions to which these researches have given origin are far from being, as some persons wish us to believe, subtilties and subterfuges invented to excuse the want of success.

Now in applying the remarks that have been made to the alleged observations of small-pox appearing after vaccination, if we exclude all those which want the conditions necessary for rendering them creditable, we find very little which can come in competition with the facts on the other side. There are, however, some, against which it is difficult to start any plausible objection. The Jennerian Society of London evidently admit the existence of such, in articles nine, ten, eleven, fourteen, and fifteen, of their report. The College of Surgeons of London say, that out of 16,438 cases of vaccination there were fifty-six, that is, one in 3,000, where it was insufficient to act as a preservative from the small-pox. But they have not informed us what was the immediate effect of these vaccinations, and to what circumstances their insufficiency could be ascribed. The authors of the Bibliotheque Britannique have inserted in their work a letter from London, dated 5th August, 1811, stating that the national cow-pox establishment in London had published two cases of small-pox occurring after a most successful vaccination. "These cases," says the letter, "are well ascertained, and admitted on the part of the establishment. But they publish, at the same time, three cases of natural small-pox occurring twice in the same individual, after an interval of eleven years."

The correspondence of the central committee of Paris contains some similar examples. Six observations were communicated by men well informed, and free from prejudice; but they were not accompanied with details sufficient to remove all uncertainty. Two of these announced small-pox appearing in the midst of an epidemic small-pox, which afflicted Beauvais in the autumn of 1810. But the children in whom this disease appeared had been vaccinated when the cow-pox was first introduced into France; and as no details are given, it is very possible that the disease communicated was the false cow-pox, at that time so common in this country. All the other children, vaccinated in the same place, and at later periods, continued exempt from the small-pox. There is a fact, which was verified by several members of the committee, and we ourselves saw the infant covered with a very numerous, but favourable small-pox, on the 7th December, 1806. This child, called Emma Kerouenne, lived in the old street of the Temple, No. 93, and had been successfully vaccinated on the 24th March, 1804, by M. Lanne, physician in Rue Françаis, who had preserved an account of the vaccination, and its progress. It is therefore evident that it is not impossible for a child that has been vaccinated to be afflicted with the small-pox. Nor indeed ought we to look for any such impossibility, as it has been well ascertained not to hold, even after inoculation, with the matter of small-pox.

But what degrees of probability do these observations leave, that vaccination will be a preservative from small-pox? We may obtain it by comparing the number of individuals who have taken the small-pox after vaccination with the whole number vaccinated, and who have not caught the infection, though repeatedly exposed to it. Another base of this evaluation is the number of counter experiments made, either by inoculation, or by placing persons that have been vaccinated in contact with those that are afflicted with the small-pox.

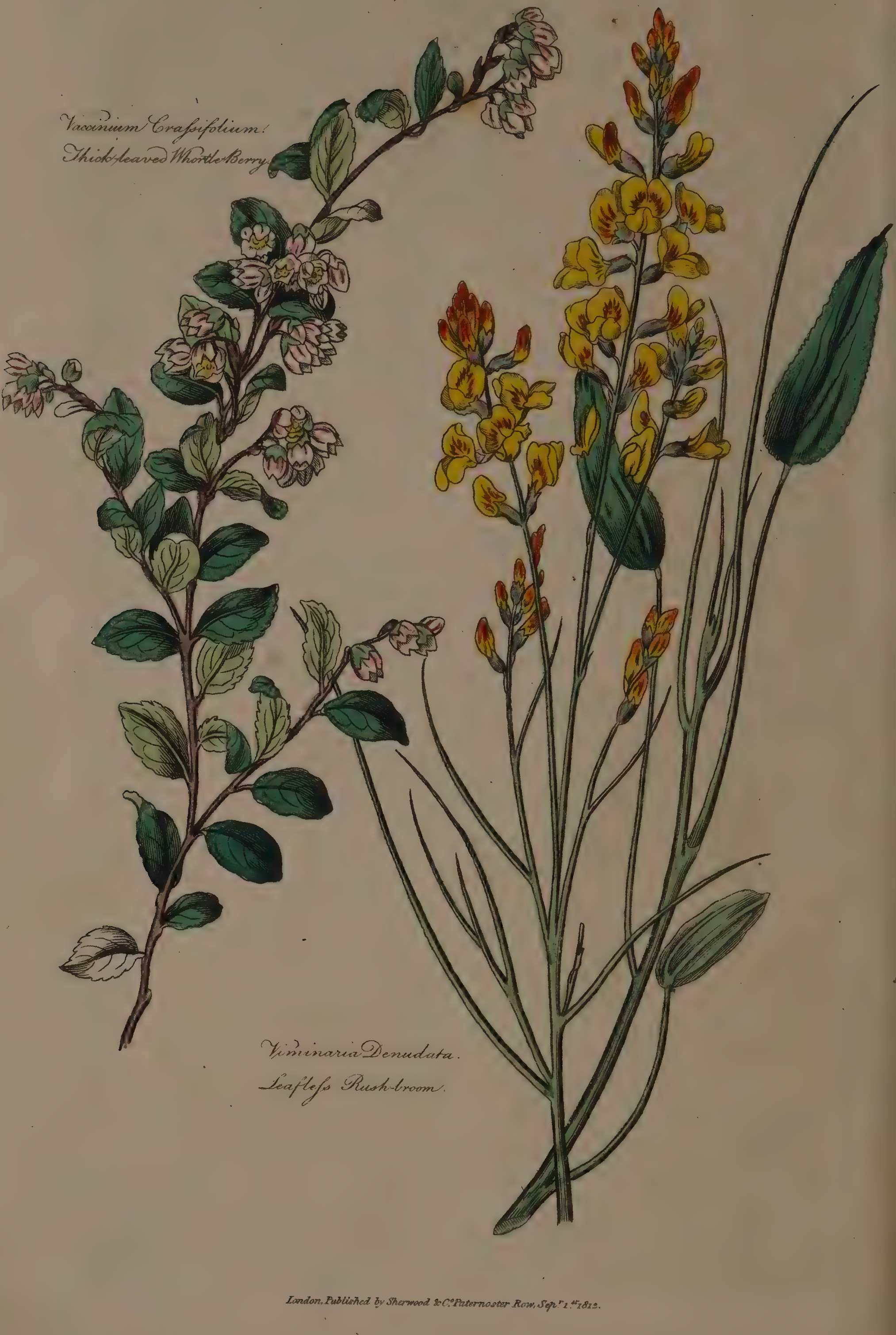
If we take the result of the correspondence of the central committee of Paris, the seven observations above-mentioned, supposing them all exact, are to be opposed to no fewer than 2,671,662 cases of vaccination. If it be objected that these seven observations, the only ones with which the committee were acquainted, are in all probability not the only ones which have occurred in the empire, we answer, that even these seven are not altogether free from uncertainty; and that the 2,671,662 vaccinations mentioned by the committee are far from being the whole number hitherto performed in France. These two numbers, being the whole obtained by the same means, are very fairly comparable with each other. They give us the ratio of 1 to 381,666.

With respect to counter-experiments, they are of three kinds; those made by inoculating with small-pox virus; those resulting from coming in contact with infected persons; those resulting from the reports of epidemic small-pox in villages, from which very few persons escape. The accounts transmitted to the committee present 640 individuals put to the test of inoculation; 680 persons living with individuals afflicted with the small-pox, and in contact with them, yet escaping the disease, while every other person took it; and 4312 who in the midst of epidemics affecting whole villages escaped the general contagion: making in all 5552 individuals that remained free from the contagion, in circumstances either artificial or natural, in which they ought, had it not been for vaccination, to have been afflicted with the disease.

Similar results have been obtained in all other countries of Europe.

From all these facts, it is impossible not to conclude that the probability that vaccination will preserve from the small-pox is as strong as that inoculation with small-pox virus itself will prove efficacious; or that the small-pox will not recur a second time in the same individual: for it appears to us unreasonable, or at least premature, to conclude that small-pox will recur after the one oftener than the other.

If to these observations we join those which are their natural consequence, and which have been attested by physicians and magistrates, both in France and in other countries, that small-pox epidemics have been stopped in their progress by vaccination; that they have been excluded from those villages where vaccination had been generally practised; that these epidemics, which used to return at stated periods, have ceased to appear at their usual epochs; that several villages have ceased to know the small-pox, and that it has



Vaccinium Craſsifolium.
Thick-leaved Whortle Berry.

Viminaria Denudata.
Leafleſs Rush-broom.

London, Published by Sherwood & C.o Paternoster Row, Sep.r 1.st 1812.

become much more uncommon than formerly in the great towns themselves, except in those places where the prejudices of the people have rejected vaccination; that the mortality of children has diminished, and that population has remarkably increased, in various places—if we consider all these circumstances, we shall not only appreciate the advantages which society is likely to reap from the precious discovery of Jenner, but the hope that the small-pox, that dreadful scourge of society, will disappear altogether, will be no longer chimerical; since this has been already realized in those places where the confidence of the people in the efficacy of vaccination has induced them generally to adopt it.

The reports published by the central committee of Paris in 1803, 1804, 1806, 1808, 1811, and 1812; and several bulletins of its correspondence, which have been successively published, contain numerous and positive proofs of all that we have advanced; namely, of epidemics terminated or circumscribed, of their periodical returns prevented, by the number of vaccinations; and of the small-pox not only rendered rare, but of its being quite unknown in particular places, since the introduction of vaccination. The same phenomena are attested by the minister of the interior of the kingdom of Italy, especially in the epidemics observed at Brescia and Milan. The physicians of Geneva attest the annihilation of the small-pox in their town. The diminution of mortality, and the increased population, in consequence, have been ascertained at Rouen, at Creuznach, at Bezançon, in the departments of the Upper Rhine, of Dordogne, &c. and even in some quarters of Paris. These are irrefragable proofs of the advantages which may be expected from the discovery of Jenner.

In the account which we have given to the Institute, of the results obtained from the introduction of the cow-pox into France, after twelve years experience, we have only collected facts of undoubted authenticity. We were of opinion that the more advantageous the consequences, drawn from any observations, the more numerous they ought to be. We have rejected all the cases where the advantages resulting might be ascribed to peculiar circumstances in the case. It was not our intention to conceal any of the motives, or any of the facts, on which the objections made against vaccination have been founded. We have compared both sides of each question together; and we have aimed less at drawing absolute and exclusive consequences than at obtaining the requisite degree of exactness to determine as much as possible the measure of probability, and to estimate in consequence the value of the discovery, and the services which it may render to mankind.

We think we have established, in a satisfactory manner, that the virus of cow-pox does not introduce into the body any matter calculated to produce disagreeable effects, and which ought to be thrown out by eruptions similar to those of the small-pox.

That the eruptions, which at first frequently followed vaccination, were owing not to the nature of the virus itself, but to other circumstances, most of them well known and easily determinable, during the existence of which the cow-pox matter was applied.

That the unfortunate results of vaccination sometimes observed ought to be ascribed to causes foreign to vaccination, which have made their appearance during its course, or which, having previously existed, acquired an intensity which ought to be ascribed not to the virus of cow-pox, but to the peculiar state of the subjects vaccinated.

That the disorders which have been sometimes observed to follow vaccination, when they are not owing to diseases already existing, are evidently particular cases, owing to the condition of individuals, and which, bearing no proportion to the number of cases exempt from all such disagreeable results, can give no room for drawing a general and unfavourable conclusion.

That these observations, even supposing them incontestable, are more than compensated by the numerous examples of chronic and obstinate maladies which have been completely and unexpectedly cured by vaccination: and that these examples, if we compare them with similar examples in favour of small-pox inoculation, if to this comparison we join the differences in the essential character of the two species of virus, and in their contagious effects, give to vaccination an incomparable advantage over small-pox inoculation, considered as a preventive of small-pox, and as a remedy for other diseases.

Finally, that the preservative effect of the cow-pox virus, when this virus is pure, and has produced genuine cow-pox, is at least as certain as that of the virus of small-pox itself; and that when considered relative to society in general, vaccination has an advantage which small-pox inoculation cannot possess; namely, the advantage of stopping, diminishing, and destroying epidemic small-pox; of diminishing the mortality of children, and of increasing the population; and that the results already obtained give hopes of seeing the small-pox, one of the most dismal diseases under which mankind has groaned, removed entirely from the face of the earth.

VACCINIUM. Whortleberry. Moorberry. Cranberry. In botany, a genus of the class octandria, order monogynia. Corol one-petalled, stamens inserted on the receptacle; berry inferior, four-celled, many-seeded. Twenty-seven species, chiefly natives of North America; several of Europe, a few of Japan: four common to our country, as follow.

1. V. myrtillus. Myrtleberry. Bilberry. Bleaberry. Peduncles one-flowered; leaves ovate, serrate, deciduous; stem angular. Found on heaths; the berry blueish-black; but there is a variety with white berries. The berries are astringent: they are eaten in milk in the highlands of Scotland, and often made into tarts and jellies. Grouse feed upon them when ripe; and they are sometimes employed as a violet dye.

2. V. uliginosum. Great bilberry-bush. Peduncles one-flowered; leaves obovate, very entire, glabrous; branches round. Found on heaths, and on the summits of the Highland mountains: the berries larger, but less esteemed than the last.

3. V. vitis idæa. Red whortleberry. Racemes terminal, nodding; leaves obovate, revolute, denticulate, dotted underneath. Found on heaths; the berries, which are also dark purple, are subacid and cooling. In Sweden

they are often made into rob or jelly. This, in the old botanical books, is an arbutus, it is so ranked by Caspar Bauhine, and is probably one of the arbuta matura puniceo colore referred to by Lucretius, lib. v. 939, as constituting a part of the food of man in his savage state, and hence rendered *wild wood-whortle* by his translator. The passage is as follows:

> "Glandiferas intercurabant corpora quercus
> Plerumque; et quæ nunc hyberus tempores cernis,
> Arbuta puniceo fieri matura colore,
> Plurima tum tellus, etiam majora, ferebat.
>
> But acorn-meals chief culled they from the shade
> Of forest-oaks; and in their wintry months,
> The wild wood-whortle with its purple fruit
> Fed them, then larger and more amply poured.
> Good.

4. V. oxycoccos. Cranberry. Moorberry. Leaves ovate, very entire, revolute, acute; stems creeping, filiform, glabrous. Found in moors and peat-bogs; berries red, and nearly of the size of those belonging to the hawthorn. In Cumberland, and some other parts, they are cultivated largely and very profitably by the poor, who bring them in great abundance to market, whence the country becomes supplied with the fruit that provides us with cranberry tarts. It was formerly used in medicine under its specific name. See the article Oxycoccos, and Botany, Pl. CLXXXIII.

VACHA, a town of Germany, in the landgravate of Hesse-Cassel, 40 miles S.E. of Cassel. Lon. 10. 12 E. Lat. 50. 55 N.

VACHE, an island of the West Indies, off the S. coast of St. Domingo, opposite St. Louis. It was formerly a rendezvous of the bucaniers, who began a settlement here in 1673.

VACI'LLANCY. *s.* (*vacillans*, Lat.) A state of wavering; fluctuation; inconstancy (*More*).

VACILLA'TION. *s.* (*vacillatio*, Latin.) The act or state of reeling or staggering (*Durham*).

VACUA'TION. *s.* (from *vacuus*, Lat.) The act of emptying.

VA'CUIST. *s.* (from *vacuum*.) A philosopher that holds a *vacuum* (*Boyle*).

VACU'ITY. *s.* (from *vacuitas*, Latin.) 1. Emptiness; state of being unfilled (*Arb.*). 2. Space unfilled; space unoccupied (*Rogers*). 3. Inanity; want of reality (*Glanville*).

VACUNA, a goddess at Rome, who presided over repose and leisure, as the word indicates (*vacare*). Her festivals were observed in the month of December. (*Ovid*).

VA'CUOUS. *a.* (*vacuus*, Latin; *vacue*, Fr.) Empty; unfilled (*Milton*).

VACUUM, in philosophy, denotes a space empty or devoid of all matter or body. It has been a matter of much dispute among philosophers whether there be in nature a perfect vacuum, or space void of all matter; but if bodies consist of material solid atoms, it is evident that there must be vacuities, or motion would be impossible. We can even produce something very near a vacuum in the receiver of an air-pump and in the Toricellian tube (see Pneumatics, *passim*); and it is very doubtful whether the particles of the densest bodies known be in perfect contact. See Optics.

To VADE. *v. n.* (*vado*, Latin.) To vanish; to pass away (*Wotton*).

Vade mecum, or Veni mecum, a Latin phrase, used in English to express a thing that is very handy and familiar, and which one usually carries about with them; chiefly applied to some favourite book.

VADO, a seaport of Italy, in the territory of Genoa, with a fort; taken by the French in 1795. It is three miles W. of Savona, and 24 S.W. of Genoa. Lon. 8. 8 E. Lat. 44. 15 N.

VADSTEIN, a town of Sweden, in East Gothland, where the kings of Sweden had formerly a palace, now in ruins. It is seated on the E. side of the lake Wetter, near the river Motala, 32 miles W. of Nordkioping. Lon. 15. 55 E. Lat. 58. 12 N.

VA'GABOND. *a.* (*vagabond*, French.) 1. Wandering without any settled habitation; wanting a home (*Ayliffe*). 2. Wandering; vagrant (*Shakspeare*).

Va'gabond. *s.* (from the adjective.) 1. A vagrant; a wanderer: commonly in a sense of reproach (*Raleigh*). 2. One that wanders illegally, without a settled habitation (*Watts*).

VAGA'RY. *s.* (from *vagus*, Latin.) A wild freak; a capricious frolic (*Locke*).

VAGINA, in botany, a sheath or membrane investing a stem.

Vagina, in anatomy. Vagina uteri. The canal which leads from the pudendum or external orifice to the uterus. It is somewhat of a conical form, with the narrowest part downwards, and is described as being five or six inches in length, and about two in diameter. But it would be more proper to say, that it is capable of being extended to those dimensions; for in its common state the os uteri is seldom found to be more than three inches from the external orifice, and the vagina is contracted as well as shortened. The vagina is composed of two coats, the first or innermost of which is villous, interspersed with many excretory ducts, and contracted into plicæ, or small transverse folds, particularly at the fore and back part, but by child-bearing these are lessened or obliterated. The second coat is composed of a firm membrane, in which muscular fibres are not distinctly observable, but which are endowed, to a certain degree, with contractile powers like a muscle. This is surrounded by cellular membrane, which connects it to the neighbouring parts. A portion of the upper and posterior part of the vagina is also covered by the peritonæum. The entrance of the vagina is constricted by muscular fibres, originating from the rami of the pubis, which run on each side of the pudendum, surrounding the posterior part, and executing an equivalent office, though they cannot be said to form a true sphincter.

The upper part of the vagina is connected to the circumference of the os uteri, but not in a straight line, so as to render the cavity of the uterus a continuation of that of the vagina. For the latter stretches beyond the former, and, being joined to the cervix, is reflected over the os uteri, which, by this mode of union, is suspended with protuberant lips in the vagina, and permitted to change its position in various ways and directions. When therefore these parts are distended and unfolded at the time of labour, they are continued into each other, and there is no part which can properly be considered as the precise beginning of the uterus or termination of the vagina.

The diseases of the vagina are, first, such an abbreviation and contraction as render it unfit for the uses for which it was designed: secondly, a cohesion of the sides in consequence of preceding ulceration: thirdly, cicatrices after an ulceration of the parts: fourthly, excrescences: fifthly, fluor albus. This abbreviation and contraction of the vagina, which usually accompany each other, are produced by original defective formation, and they are seldom discovered before the time of marriage, the consummation of which they sometimes prevent. The curative intentions are to relax the parts by the use of emollient applications, and to dilate them to their proper size by sponge or other tents, or, which are more effectual, by bougies gradually enlarged.

Another kind of constriction of the external parts sometimes occurs, and which seems to be a mere spasm. By the violence or long continuance of a labour, by the morbid state of the constitution, or by the negligent and improper use of instruments, an inflammation of the external parts or vagina is sometimes produced in such a degree as to endanger a mortification. By careful management this consequence is usually prevented, but in some cases, when the constitution of the patient was prone to disease, the external parts have sloughed away, and in others equal injury has been done to the vagina. But the effect of the inflammation is usually confined to the internal or villous coat, which is sometimes cast off wholly or partially. An ulcerated surface being thus left, when the disposition to heal has taken place, cicatrices have been formed of different kinds, according to the depth and extent of the ulceration; and there being no counteraction to the contractile state of the parts, the dimensions of the vagina become much reduced, or, if the ulceration should not be healed, and the contractibility of the parts continue to operate, the ulcerated surfaces being brought together may cohere, and the canal of the vagina be perfectly closed.

Cicatrices in the vagina very seldom become an impediment to the connexion between the sexes; when they do, the same kind of assistance is required as was recommended in the natural contraction or abbreviation of the part; they always give way to the pressure of the head of the child in the time of labour, though in many cases with great difficulty. Sometimes the appearances may mislead the judgment: Dr. Denman was called to a woman in labour, who was thought to have become pregnant; the hymen remained unbroken: but, on making very particular inquiry, he discovered that this was her second labour, and that the part which from its form and situation was supposed to be the hymen, with a small aperture, was a cicatrice, or unnatural contraction of the entrance into the vagina, consequent to an ulceration of the part after her former labour. Fungous excrescences arising from any part of the vagina or uterus have been distinguished, though not very properly, by the general term polypus. See POLYPUS.

VAGINA OF THE NERVES. The outer covering of the nerves. By some it is said to be a production of the pia mater only, and by others of the dura mater, because it agrees with it in tenacity, colour, and texture.

VAGINA OF THE TENDONS. A loose membranous sheath formed of cellular membrane, investing the tendons, and containing an unctuous juice, which is secreted by the vessels of its internal surface. Ganglions are nothing more than an accumulation of this juice.

VAGINALES. The name of the twenty-seventh order in Linnéus's Fragments of a Natural Method in his Philosophia Botanica.

VAGINALIS. Sheathbill. In zoology, a genus of the class aves, order grallæ. Bill strong, thick, conic-convex, compressed; the upper mandible covered above with a moveable horny sheath; nostrils small, placed before the sheath; tongue above round, beneath flattened, pointed at the tip; face naked, papillous; wings with an obtuse excrescence under the flexure; legs strong, four-toed, naked a little above the knees; toes rough beneath; claws grooved: one species only, V. alba, white sheathbill, which inhabits New Zealand and the South Sea Islands; from fifteen to eighteen inches long: feeds on shell-fishes and carcasses.

VAGINANT LEAF, in botany. A sheathing leaf. See SHEATHING.

VAGINATE STEM, in botany. A sheathed stem. See SHEATHED.

VAGINOPE'NNOUS. *a.* (*vagina* and *penna*, Latin.) Sheath-winged; having the wings covered with hard cases.

VA'GOUS. *a.* (*vagus*, Lat. *vague*, French.) Wandering; unsettled: not in use (*Ayliffe*).

VA'GRANCY. *s.* (from *vagrant.*) A state of wandering; unsettled condition.

VA'GRANT. *a.* Wandering; unsettled; vagabond; unfixed in place (*Prior*).

VAGRANTS, in law, are divided into three classes: 1st, Idle and disorderly persons. These, as described by the vagrant act, consist of those who threaten to run away and leave their wives and children to the parish. All persons returning to a parish whence they have been legally removed, without bringing a certificate from the parish to which they belong. All who, not having wherewith to maintain themselves, refuse to work. All who beg alms from door to door, or in the streets and highways. Likewise those who, not using proper means to get employment, or possessing ability to work, refuse to do it; or spend money in alehouses, or in any improper manner; and by not employing a proper proportion of their earnings towards the maintenance of their families, suffer them to become chargeable to the parish. The punishment for these offences is a commitment to the house of correction, and hard labour, for any definite time not exceeding a month; the time must be set forth in the warrant of commitment, which must also shew the authority of the person committing. The commitment must be in execution, that is to say, for punishment; and being so, the justice must make a record of the conviction, and transmit the same to the sessions. Any person may apprehend and carry such persons before a magistrate; and if they resist or escape, the shall be punished as rogues and vagabonds: the reward for such apprehension is five shillings, to be paid by the overseer of the parish.

2. Rogues and vagabonds. No infant under the age of seven years can be called a rogue and vagabond, but shall be removed to its place of settlement, like other paupers.

The following is a list of those who are deemed rogues and vagabonds. All persons gathering alms under pretended losses; persons going about as collectors for prisons or hospitals; fencers; bearwards; common players not legally authorised; minstrels; jugglers; real or pretended gypsies; fortune-tellers; any persons using any subtle craft to impose upon any of his majesty's subjects, or playing at unlawful games, or any who have run away and left their wives and children a charge to the parish; all petty chapmen and pedlars not authorised by law; all persons not giving a good account of themselves; all beggars pretending to be soldiers or seamen, or pretending to go to work in harvest; or illegal dealers in lottery tickets and shares. And all other persons wandering abroad and begging, shall be deemed rogues and vagabonds: the reward for apprehending such persons is 10*s*., to be paid by the high constable, on an order from the justice. There is a penalty of 10*s*. on a constable who refuses or neglects to apprehend them.

3. Incorrigible rogues, are all end-gatherers, offending against the stat. 13 Geo.; which is collecting, buying, receiving, or carrying, any ends of yarn, wefts, thrums, short yarn, or other refuse of cloth or woollen goods. All persons apprehended as rogues and vagabonds, and escaping, or refusing to go before a justice, or refusing to be conducted by the pass, or giving a false account of themselves on examination, after warning. All rogues or vagabonds escaping from the house of correction before the expiration of the time of their commitment; and all who have been punished as rogues and vagabonds, and repeat the offence.

There is by 17 Geo. II. c. 25, a privy search appointed; and the justices or two of them four times a year at least meet, and command the constables of every ward or parish, properly assisted, to make a general search in one night, and cause all vagrants that shall be found on such search to be brought before a justice; and two justices, in case such person is charged as a vagrant, or on suspicion of felony, may examine him; and if he cannot shew some lawful way of getting his livelihood, or procure bail for his reappearance, may commit him for a certain time not exceeding six days; and if, after advertising his person, and any thing about him suspected to be stolen, no accusation is brought, he shall be discharged, or dealt with according to law. All rogues and vagabonds are examined upon oath as to their parish, and the written examination signed by them and the justice, and transmitted to the sessions.

The punishment is public whipping or confinement to the house of correction till the next sessions, or any less time; and if at the sessions the court adjudge such person a rogue and vagabond, or an incorrigible rogue, they may order such rogue or vagabond to the house of correction and hard labour for six months, or such incorrigible rogue for not less than six months or more than two years, and during his confinement to be whipped as they shall think fit. And if such rogue or vagabond is a male above 12 years old, the court may, after his confinement, send him to be employed in his majesty's service: and if such incorrigible rogue shall make his escape, or offend a second time, he shall be transported for seven years. After such whipping or confinement, the justice may, by a pass under his hand (of which a duplicate shall be filed at the next sessions), cause him to be conveyed to the place of his last legal residence, and if that cannot be found, to the place of his birth; and if they are under 14 years of age, and have parents living, then to the place of their abode; and the parish to which the vagrant shall be conveyed shall employ him in some workhouse till he gets some employment; and if he refuses to work, he shall be sent to the house of correction and hard labour.

The general tenor of the laws respesting vagrants is extremely severe, and very justly so; and it is the duty of every justice of the peace to keep his district free from this class, as they are great burthens to the parish, and very difficult to be removed. For the best account of the vagrant act, vide Burn's Justice, vol. 4, article Vagrant.

VAGUE. *a.* (*vague*, French; *vagus*, Lat.) 1. Wandering; vagrant; vagabond (*Hayw.*). 2. Unsettled; undetermined (*Locke*).

VAHLIA, in botany, a genus of the class pentandria, order digynia. Calyx five-leaved; corol five-petalled; capsule inferior, one-celled, many-seeded. One species, a herb of the Cape.

VAIL. *s*, (*vaile*, French.) 1. A curtain; a cover thrown over any thing to be concealed (*Wisdom*). 2. A part of female dress, by which the face is concealed. See VEIL. 3. Money given to servants. See VALE.

To VAIL. *v. a.* To cover. See VEIL.

To VAIL. *v. a.* (*avaler le bonet*, French.) 1. To let fall; to suffer to descend (*Carew*). 2. To let fall in token of respect (*Knolles*). 3. To fall; to let sink in fear, or for any other interest (*Shakspeare*).

To VAIL. *v. n.* To yield; to give place; to show respect by yielding (*South*).

VAILLANT (John Foy), a French medallist, born at Beauvais, 1632. He studied jurisprudence, and afterwards medicine; but the sight of a number of medals, which a peasant found in digging in a neighbouring field, fixed the bent of his genius. On a visit to Paris he was introduced to Colbert, who engaged him to travel overy Italy, Sicily, and Greece, in quest of medals. On a second voyage from Marseilles, he was taken by pirates, and was carried as a slave to Algiers; but after five months of slavery, he returned to France for his ransom. At sea, the sight of another pirate threatened fresh slavery; but to preserve the medals which he had collected at Algiers he swallowed them. He landed soon after at the mouths of the Rhone, and nature discharged the favourite medals. He undertook another voyage, and visited Egypt and Persia, and returned loaded with curiosities. His labours were liberally rewarded by Lewis XIV.; he was made associate of the academy of inscriptions 1701, and died of an apoplexy 1706, aged seventy-six. The best known of his works are, Numismata imperatorum Roman. præstantiora a J. Cæsar. ad Posthumum & tyrannos, 4to. enlarged to three vols. 4to.—Seleucidarum imperium, &c. 4to. a valuable work—Numismata ærea Augustorum & Cæsar. in coloniis, &c. two vols. folio.—Numismata imperatorum, &c. apud Græcos, folio, &c.—His son, John Francis, was born at Rome, and educated at Paris among the jesuits. He took his degrees in medicine, but studied the science of medals. He died 1708, aged forty-four, of an abscess in the head, occasioned by a fall. He is author of a Treatise on the Nature and Use of Coffee, &c.

VAILLANT (Sebastian), a botanist, born near Pontoise. From organist at a convent he became secretary to Fagon, the king's physician, and was made director of the royal gardens. He enriched the garden by the addition of curious plants, and had a seat in the academy of sciences. He published remarks on Tournefort's Institutions of Botany—Botanicon Parisiense, containing an account of the plants which grow near Paris, with 300 plates, &c. He died of an asthma, 1722, aged fifty-three.

VAIN. *a.* (*vain*, French; *vanus*, Latin.) 1. Fruitless; ineffectual (*Shakspeare*). 2. Empty; unreal; shadowy (*Dryden*). 3. Meanly; proud; proud of petty things (*Swift*). 4. Showy; ostentatious (*Pope*). 5. Idle; worthless; unimportant (*Denham*). 6. False; not true. 7. *In* VAIN. To no purpose; to no end; ineffectually; without effect (*Addison*).

VAINGLO'RIOUS. *a.* (*vanus* and *gloriosus*, Latin.) Boasting without performances; proud in disproportion to desert (*Milton*).

VAINGLO'RY. *s.* (*vana gloria*, Latin.) Pride above merit; empty pride (*Taylor*).

VAI'NLY. *ad.* (from *vain.*) 1. Without effect; to no purpose; in vain (*Dryden*). 2. Proudly; arrogantly (*Delaney*). 3. Idly; foolishly (*Grew*).

VAI'NNESS. *s.* (from *vain.*) The state of being vain; pride; emptiness (*Shakspeare*).

VAISON, a decayed town of France, in the department of Vaucluse, with a bishop's see. It was lately subject to the pope, and is seated on a mountain, on which there is a castle, near the river Oreze, and the ruins of ancient Vaison, which was one of the largest cities of the Gauls. It is 15 miles E.N.E. of Orange, and 22 N.E. of Avignon. Lon. 5. 6 E. Lat. 44. 15 N.

VA'IVODE. *s.* (*waiwod*, a governour, Sclavonian.) A prince of the Dacian provinces.

VA'LANCE. *s.* (from *Valencia*, whence the use of them came.) The fringes or drapery hanging round the tester and stead of a bed (*Swift*).

To VA'LANCE. *v. a.* To decorate with drapery: not in use (*Shakspeare*).

VALANTIA. Cross-wort. In botany, a genus of the class polygamia, order monœcia. Hermaph.: calyxless; corol four-parted; stamens four; style one; seed one. Male: calyxless; corol three or four-parted; stamens four or three; pistil obsolete. Eight species; natives of the south of Europe or West Indies. It was formerly supposed that our own country furnished a ninth species; but the plant thus supposed to be a valantia belongs to another genus.

VALCKOWAR, a town of Sclavonia, seated on the Walpo, near its confluence with the Danube, between Esseck and Peterwaradin, 70 miles N.W. of Belgrade. Lon. 19. 51 E. Lat. 45. 55 N.

VALDAI, a town of Russia, in the government of Novogorod, on the side of a lake of the same name. It contains several brick buildings; and even the wooden houses are more decorated than the generality of Russian cottages. Its environs rise into a variety of gentle eminences, and abound with beautiful lakes, sprinkled with woody islands, and skirted by forests, corn-fields, and pastures.

VALDAI (Lake of), in the government of Novogorod, in Russia. It is 20 miles in circumference, and the largest in the country round the town of Valdai. In the middle of it is an island, containing a convent which rises with its numerous spires among a cluster of surrounding trees.

VALDAI HILLS, hills of Russia, in the government of Novogorod, which, though of no considerable elevation, are the highest in this part of the country. They separate the waters which flow toward the Caspian from those which take their course toward the Baltic.

VAL DI DEMONA, a province in the N.E. angle of Sicily. It means the valley of demons, and is so called because Mount Etna is situate in this province, which occasioned ignorant and superstitious people, at the time of its fiery eruptions, to believe it was a chimney of hell. The capital is Messina.

VAL DI MAZARA, a province in the W. angle of Sicily, so called from the town of Mazara. It contains Palermo, the capital of the whole island.

VALDIVIA. See BALDIVIA.

VALE. *s.* (*val*, French; *vallis*, Latin.) 1. A low ground; a valley (*Dryden*). 2. (from *avail*, profit; or *vale*, farewell.) Money given to servants (*Swift*).

VALEDI′CTION. *s.* (*valedico*, Latin.) A farewell (*Donne*).

VALEDI′CTORY. *a.* (from *valedico*, Lat.) Bidding farewell.

VALENCE, a city of France, in the department of Drome, with a bishop's see, a citadel, and a school of artillery. It is surrounded by good walls, and the greatest part of the public places, and many private houses, are adorned with fountains. Beside the handsome cathedral, there are many other churches, as well as late convents, that are worthy of notice. It is seated on the Rhone, 30 miles N. by E. of Viviers, and 335 S. by E. of Paris. Lon. 4. 52 E. Lat. 44. 56 N.

VALENCE, a town of France, in the department of Lot and Garonne, situate on the Garonne, 12 miles S.E. of Agen.

VALENCA D'ALCANTARA, a considerable town of Spain, in Estremadura, with an old castle. It is surrounded by walls after the antique manner, flanked by some small bastions, and a few towers; is very strong by situation, being built on a rock, near the river Savar, 20 miles S.W. of Alcantara, and 40 N. of Badajoz. Lon. 6. 30 W. Lat. 39. 26 N.

VALENCEY, a town of France, in the department of Indre, with a castle, seated on the Nabon, 15 miles S. of Romorentin.

VALENCIA, a province of Spain, formerly a kingdom; bounded on the E. and S. by the Mediterranean, on the N.E. by Catalonia, on the N.W. by Arragon, and on the W. by New Castile and Murcia. It is 162 miles long and 62 broad, and is the most pleasant and populous country in Spain; for here they enjoy a perpetual spring. It is watered by a great number of streams, which render it fertile in all the necessaries of life, especially fruits and wine; and in the mountains are mines of gold, silver, and alum. The inhabitants are much more lively than in other parts of Spain; and the women are handsomer.

VALENCIA, a city of Spain, capital of a province of the same name, with an archbishop's see, and a university. The Moors were expelled from it, in the thirteenth century. It was taken by the earl of Peterborough in 1705, and lost again two years after. It contains 12,000 houses within the walls, beside those in the suburbs and pleasure gardens around it, which amount to the same number. The cathedral has a steeple 130 feet high, and one side of the choir is incrusted with alabaster, and adorned with fine paintings of scripture history; the high altar is covered with silver, and lighted with fourteen silver lamps. The palace of the viceroy, that of Ciuta, the monastery of St. Jerom, the exchange, and the arsenal, are all worthy of notice. Here are flourishing manufactures of cloth and silk, and several remains of antiquity. It is seated on the Guadalavia (over which are five bridges) near the Mediterranean, 130 miles E.S.E. of Madrid. Lon. 0. 10 E. Lat. 39. 23 N.

VALENCIA (New), a town of Terra Firma, in the province of Caraccas, seated on the lake Tocarigua, 57 miles S.W. of Porto Cavallo. Lon. 65. 30 W. Lat. 9. 50 N.

VALENCIENNES, a city of France, in the department of the North. It contains about 20,000 souls, and the Scheldt divides it into two parts. It is a very important place: the citadel and fortifications were constructed by order of Lewis XIV., who took this town from the Spaniards; and it was confirmed to him by the treaty of Nimeguen, in 1678. In 1793, it was taken by the allies, after a severe siege; but it surrendered, without resistance, to the French, in 1794. Beside lace, this city is noted for manufactures of woollen stuffs and cambric. It is 28 miles S.E. of Lisle, and 120 N.N.E. of Paris. Lon. 3. 32 E. Lat. 50. 21 N.

VALENS (Flavius), a son of Gratian, born in Pannonia. His brother Valentinian took him as his colleague on the throne, and appointed him over the eastern parts of the Roman empire. The bold measures and threats of the rebel Procopius frightened Valens, and he would willingly have resigned to him all his pretensions to the empire. By his lenity he permitted some of the Goths to settle in the provinces of Thrace, and encouraged them to make depredations on his subjects, and to disturb their tranquillity. His eyes were opened too late; he attempted to repel them, but he failed in the attempt. A bloody battle was fought, in which the barbarians obtained some advantage, and Valens took shelter in a lonely house, which the Goths set on fire. Unable to make his escape, he was burnt alive in the fiftieth year of his age, after a reign of fifteen years, A. D. 378. Valens did not possess any of the great qualities which distinguish a great and powerful monarch.

VALENTINA, in botany, a genus of the class octandria, order monogynia. Calyx five-parted, coloured, spreading; corolless; capsule berried, four-seeded, pulpy. One species only, a branched shrub of Hispaniola, with alternate leaves, and terminal, umbelled, scarlet flowers.

VALENTINE'S DAY, in the calendar, the fourteenth of February.

VALENTINE, a sweetheart chosen on Valentine's day.

VALENTINIANS, in ecclesiastical history, an ancient and famous sect of Gnostics; thus called from their leader Valentinus, an Egyptian by birth, who was eminently distinguished by the extent of his fame, and the multitude of his followers. He lived in the days of Polycarp, went to Rome in the pontificate of Hyginus, flourished in the reign of Antoninus Pius, and continued to the time of Anicetus. Vide Euseb. Hist. Eccles. lib. iv. c. 11. His sect, which took its rise at Rome, grew up to maturity in the isle of Cyprus, and spread itself through Asia, Africa, and Europe, with amazing rapidity. His principles were much the same with those of the Gnostics, though in many respects he entertained opinions peculiar to himself. He placed in the pleroma, as the Gnostics called the habitation of the Deity, thirty æons, half male and half female; to these he added four others, which were of neither sex, viz. Horus, Christ, the Holy Ghost, and Jesus. The youngest æon, called Sophia or wisdom, conceived an ardent desire of comprehending the nature of the Supreme Being, and by the force of this propensity, brought forth a daughter, named Achamoth; who, being exiled from the pleroma, fell down into the undigested mass of matter and arranged it; and by the assistance of Jesus, produced the demiurge, the lord and creator of all things. This demiurge separated the animal from the terrestrial matter; and out of the former created the superior world, or visible heavens; and out of the latter the inferior world, or the terraqueous globe. He also made man, uniting in his composition the animal and terrestrial matter, to which Achamoth added a spiritual and celestial substance. The demiurge, according to Valentinus, arrogating the honours of God alone, sent prophets to the Jewish nation to urge his claims; and his ambition was imitated by the other angels that preside over the different parts of the universe. In order to chastise this lawless arrogance, and to illuminate the minds of rational beings with the knowledge of the true and supreme Deity, Christ appeared on earth, composed of an animal and spiritual substance, and clothed, moreover, with an aerial body. Christ took not upon him our flesh, but brought with him a certain spiritual body from heaven, and passed through the Virgin, *as water through a pipe*, without the least participation of her substance; and that the Soter or Saviour flew down upon him at his baptism in the shape of a dove. Vide Tertul. de Prescr. cap. 49, & lib. adv. Valent. c. 27. Valentinus maintained likewise, that the world was made by the offspring of the devil; and therefore made all the wickedness in it owing to the make of the world, and not to the will of man. He denied the resurrection of the flesh, and affirmed the soul and spirit only to be saved by Christ. Vide Aug. Hæres. 11. The Valentinians, says Irenæus, call themselves the spiritual, and the orthodox, psychicos, the animal men; that these animals know not the truth, and for that reason must be beholden to faith and good works for their salvation; but, for themselves, they stand in need of no such things, because they are naturally spiritual, and cannot lose their spirituality; and therefore, though sin may damn the churchmen, it cannot hurt the saints. Iren. lib. 1. adv. Valent.

VALENTINIANUS. This name is common to three Roman emperors; the first of whom was a son of Gratian, raised to the imperial throne by his merit and valour. He kept the western part of the empire for himself, and appointed over the east his brother Valens. He obtained signal victories over the barbarians in the provinces of Gaul, the desarts of Africa, and on the banks of the Rhine and the Danube. While he spoke with great warmth, he broke a blood vessel, and fell lifeless on the ground. He died on the seventeenth of November, A. D. 375. He was then in the fifty-fifth year of his age, and he reigned twelve years. (*Ammian.* &c.)—About six days after the death of Valentinian, his second son, Valentinian the second, was proclaimed emperor, though only five years old. He succeeded his brother Gratian, A. D. 383, but was robbed of his throne by Maximus, four years after the death of Gratian; and in this situation he had recourse to Theodosius, then emperor of the east. Maximus was conquered by Theodosius, and Valentinian entered Rome in triumph, but was some time after strangled (15th of May, A. D. 392) by a Gaul, called Arbogastes, in whom he had placed too much confidence. Valentinian reigned nine years.—Valentinian the third, was son of Constantius and Placidia, the daughter of Theodosius the great, and therefore, as related to the imperial family, he was saluted emperor in his youth, and publicly acknowledged as such at Rome, the third of October, A. D. 423, about the sixth year of his age. He was at first governed by his mother, and the intrigues of his generals and courtiers; and when he came to years of discretion, he disgraced himself by violence, oppression, and incontinence. He was murdered in the midst of Rome, A. D. 454, in the thirty-sixth year of his age, and thirty-first of his reign, by Petronius Maximus, to whose wife he had offered violence. He was the last of the family of Theodosius.

VALENZA, a town of Italy, in the Milanese, capital of the Lumeline. It has been often taken, and is seated on a mountain, near the river Po, 12 miles E.S.E. of Casal, and 35 S.S.W. of Milan.

VALENZA, a fortified town of Portugal, in Entre Douero e Minho, seated on an eminence, near the river Minho, opposite Tuy, in Spain, and 30 miles N.N.W. of Braga.

VALERIAN. See VALERIANA.

VALERIAN (Greek). See POLEMONIUM.

VALERIANA. Valerian. In botany, a genus of the class triandria, order monogynia. Calyxless; corol one-petalled, superior, gibbous on one side at the base; seed one. Thirty-one species; all natives of Europe, except V. villosa, which belongs to Japan. They are thus subdivided.

A. With a single pappous seed. Forming the tribe of valeriana, properly so called.

B. Fruit three-celled, crowned. Forming the tribe fedia.

The following are cultivated.

1. V. rubra. Common broad-leaved red valerian.

2. V. angustifolia. Narrow-leaved valerian.

3. V. phu, or major. Garden valerian. A native of Silesia, the roots of which are said to be efficacious in removing epilepsies and rheumatisms, especially sciatic rheumatisms.

4. V. calcitrapa. Cut-leaved valerian.
5. V. tripteris. Three-leaved valerian.
6. V. montana. Mountain valerian.
7. V. Celtica. Celtic valerian.
8. V. tuberosa. Tuberous-rooted valerian.
9. V. Pyrenaica. Pyrenean valerian.
10. V. locusta. Common corn-salad, or lamb's lettuce.
11. V. officinalis. Officinal valerian. Found wild in our marshes, the root of which has been long extolled as an efficacious remedy in epilepsy, which caused it to be exhibited in a variety of other complaints termed nervous, in which it has been found highly serviceable. It is also in very general use as an antispasmodic, and is exhibited in convulsive hysterical diseases. A simple and volatile tincture are directed in the pharmacopœias.

VALERIANUS (Publius Licinius), a Roman, proclaimed emperor by the armies in Rhœtia, A. D. 254. The virtues which shone in him when a private man were lost when he ascended the throne. He took his son Gallienus as his colleague in the empire, and showed the malevolence of his heart by persecuting the Christians, whom he had for a while tolerated. He made war against the Goths and Scythians; but against Sapor, king of Persia, his arms were attended with ill success. He was conquered in Mesopotamia, and when he sought a private conference with Sapor, the monarch seized his person, and carried him to his capital, where he exposed him to the ridicule and insolence of his subjects. When the Persian monarch mounted on horseback, Valerian served as footstool. Sapor at last ordered him to be flayed alive, and salt to be thrown over his mangled body, so that he died in the greatest torments. His skin was tanned, and painted in red, and was nailed in one of the temples of Persia. Valerian died in the 71st year of his age, A. D. 260, after a reign of seven years.

VALERIUS. This name was common to many celebrated Romans, the most conspicuous of whom are the following:—1. Publius, a celebrated Roman, surnamed Poplicola, for his popularity. He was very active in assisting Brutus to expel the Tarquins, and he was the first that took an oath to support the liberty and independence of his country. He gained the victory in the battle in which Brutus and the sons of Tarquin had fallen. Valerius died after he had been four times consul, and received the thanks which a people redeemed from slavery usually pay to their deliverers. He was so poor, that his body was buried at the public expence. The Roman matrons mourned his death a whole year.—2. Corvinus, a tribune of the soldiers under Camillus. When the Roman army were challenged by one of the Senones, remarkable for his strength, Valerius undertook to engage him, and obtained an easy victory, by means of a crow that assisted him, and attacked the face of the Gaul, whence his surname of Corvinus. Valerius triumphed over the Etrurians, and the neighbouring states, and was six times honoured with the consulship. He died in the 100th year of his age, admired and regretted for many private and public virtues.—3. Marcus Corvinus Messala, a Roman, made consul with Augustus. He distinguished himself by his learning as well as military virtues.—4. A Latin historian who carried arms under the sons of Pompey. He wrote an account, still extant, of the most celebrated sayings and actions of the Romans, and other illustrious persons. The work is divided into nine books, and is dedicated to Tiberius. Some suppose that he lived after Tiberius, from the want of purity in his writings.—5. A Latin poet who flourished under Vespasian. He wrote a poem in eight books, on the Argonautic expedition, but it remained unfinished on account of his premature death.

VALET, a French word, employed by us to denote a servant whose office is to dress, undress, and wait upon his master.

VALET, in the old manage, was a stick armed at one end with a blunted point of iron, to prick a leaping horse. Some valets formerly had spur-rowels upon them, with the points beaten down. When a horse first began to be worked round a pillar, without a rider, they used to prick his flanks with the valet, to make him know the spur and obey it without resisting.

VALETTA, a city of Malta, the capital of that island, and wonderfully strong both by nature and art. It is seated on a peninsula, between two of the finest ports in the world, which are defended by almost impregnable fortifications. That on the S.E. side of the city is the largest; it runs two miles inland, and is surrounded by such high grounds, that the largest ships may ride in the most stormy weather, almost without a cable. This basin is divided into five distinct harbours, all equally safe, each capable of containing a vast number of shipping. The entrance is scarcely a quarter of a mile broad, and is commanded on each side by strong batteries, fronted by a quadruple battery, one above the other, the largest of which is on a level with the water. The harbour on the N. side, though only used for fishing, and as a place of quarantine, is likewise well defended; and in an island in the centre of it is a castle and a lazaret. Valetta has three gates, and the streets are all paved with flat square stones. The houses are neat, and built of stone; the roofs forming a flat terrace plastered with pozzolana; and most of them have a balcony to the street, where the inhabitants pass a great part of their time. The principal buildings are the palace of the grand master, the infirmary, the conservatory, and the magnificent church of St. John. The pavement of this church is composed entirely of sepulchral monuments of the finest marbles, porphyry, lapis lazuli, and a variety of other valuable stones, admirably joined together, representing the arms, insignia, &c. of the persons whose names they commemorate. The great source of water that supplies Valetta rises near Citta Vecchia, and is thence conveyed by an aqueduct, erected at the expence of one of the grand masters. Notwithstanding the supposed bigotry of the Maltese, here is a mosque, in which the Turkish slaves are permitted to enjoy their religion. The Turks besieged this city in 1566; but, after many dreadful assaults, were compelled to raise the siege, with the loss of 30,000 men. It surrendered to the French, under Bonaparte, in 1798; and they, in 1800, surrendered it to the British, after a blockade of two years. Valetta is situate opposite Cape Passero in Sicily. Lon. 15. 34 E. Lat. 35. 54 N.

VALETUDINA′RIAN. VALETU′DINARY. *a.* (*valetudinaire*, Fr. *valetudo*, Latin.) Weakly; sickly; infirm of health (*Derham*).

VA′LIANCE. *s.* (*vaillance*, Fr.) Valour; personal puissance; bravery (*Spenser*).

VA′LIANT. *a.* (*vaillant*, Fr.) Stout; personally puissant; brave (*Nelson*).

VA′LIANTLY. *ad.* (from *valiant.*) Stoutly; with personal strength (*Knolles*).

VA′LIANTNESS. *s.* (from *valiant.*) Valour; personal bravery; puissance; fierceness; stoutness (*Knolles*).

VA′LID. *a.* (*valide*, Fr. *validus*, Latin.) 1. Strong; powerful; efficacious; prevalent (*Milton*). 2. Having intellectual force; prevalent; weighty; conclusive (*Stephens*).

VALI′DITY. *s.* (*validete*, Fr. from *valid.*) 1. Force to convince; certainty (*Pope*). 2. Value. A sense not used (*Shakspeare*).

VALLADOLID, a city of Spain, in Leon, capital of a principality of the same name, and a bishop's see, with a university. It is surrounded by strong walls, has long and broad streets, and is adorned with handsome buildings, squares, and fountains. The market-place, called El Campo, is 700 paces in circumference, surrounded by a great number of convents. There are 70 monasteries and nunneries, the finest of which is that of the Dominicans, remarkable for its church, which is one of the most magnificent in the city. The kings formerly resided at this place; and the royal palace, which still remains, is of very large extent, though but two stories high. The townhouse takes up the entire side of a square. The house of the inquisition is an odd structure, for there are no windows, but a few holes to let in the light. Here are some woollen manufactures, and many goldsmiths and jewellers. The environs of the city are covered with gardens, orchards, vineyards, meadows, and fields. It is seated on the Escurva, near the Pisuerga, 74 miles S.S.E. of Leon, and 100 N.N.W. of Madrid. Lon. 4. 47 W. Lat. 41. 42 N.

VALLADOLID, or COMAYAGUA, a city of Mexico, capital of the province of Honduras, and a bishop's see; seated in a plain, 280 miles E. of Guatimala. Lon. 88. 20 W. Lat. 14. 35 N.

VA′LLANCY. *s.* (from *valance.*) A large wig that shades the face (*Dryden*).

VALLEA, in botany, a genus of the class polyandria, order monogynia. Calyx three or four-leaved; petals four or five, three-cleft; stigma four or five-cleft; capsule two-celled, many-seeded. One species only; a tree of New Granada, with alternate, heart-shaped, entire leaves, and red panicled flowers.

VA′LLEY. *s.* (*vallée*, Fr. *vallis*, Lat.) A low ground; a hollow between hills (*Milton*).

VALLIER (St.), a town of France, in the department of Ardeche, seven miles N.E. of Tournon. Lon. 2. 5 E. Lat. 49. 10 N.

VALLISNERIA, in botany, a genus of the class diœcia, order diandria. Male: spathe two-parted; spadix covered with florets; corol three-parted. Female: spathe cloven; one-flowered; calyx three-parted, superior; stigma three-parted; capsule one-celled, many-seeded. Two species; one a native of Finmark, the other of Coromandel. Aquatic plants.

VALOGNE, a town of France, in the department of the Channel, noted for cloth and leather. It is seated on a brook, eight miles from the sea, and 158 W. by N. of Paris. Lon. 1. 26 W. Lat. 49. 30 N.

VALONA, a seaport of Turkey in Europe, in Upper Albania, with an archbishop's see. It was taken, in 1690, by the Venetians, who abandoned it after they had ruined the fortifications. It is seated on the gulf of Venice, near the mountains of Chimera, 50 miles S. of Durazzo. Lon. 19. 23 E. Lat. 41. 4 N.

VA′LOROUS. *a.* (from *valour.*) Brave; stout; valiant (*Spenser*).

VA′LOROUSLY. *ad.* In a brave manner.

VA′LOUR. *s.* (*valeur*, Fr. *valor*, Latin.) Personal bravery; strength; prowess; puissance; stoutness (*Temple*).

VALPARISSO, a town of Chili, with a well-frequented harbour, defended by a strong fort. It is seated on the Pacific ocean, at the foot of a high mountain. Lon. 72. 14 W. Lat. 33. 3 S.

VALPERGA, a town of Piedmont, in the county of Canavese, 11 miles S.S.W. of Ivrea, and 16 N. of Turin. Lon. 7. 44 E. Lat. 45. 21 N.

VA′LUABLE. *a.* (*valuable*, French.) 1. Precious; being of great price. 2. Worthy; deserving regard (*Atterbury*).

VALUA′TION. *s.* (from *value.*) 1. The act of setting a value; appraisement (*Ray*). 2. Value set upon any thing (*Bacon*).

VALUA′TOR. *s.* (from *value.*) An appraiser; one who sets upon any thing its price (*Swift*).

VA′LUE. *s.* (*value*, French; *valor*, Latin.) 1. Price; worth (*Job*). 2. High rate (*Addison*). 3. Rate; price equal to the worth of the thing bought (*Dryden*).

To VA′LUE. *v. a.* (*valoir*, French.) 1. To rate at a certain price (*Spenser*). 2. To rate highly; to have in high esteem (*Atterbury*). 3. To appraise; to estimate (*Leviticus*). 4. To be worth; to be equal in worth to (*Shakspeare*). 5. To take account of (*Bacon*). 6. To reckon at, with respect to number or power (*Shakspeare*). 7. To consider with respect to importance; to hold important (*Clarendon*). 8. To compare with respect to price, or excellence (*Job*). 9. To raise to estimation: not in use (*Sidney*).

VALVE, in hydraulics, pneumatics, &c. is a kind of lid or cover to a tube, vessel, or orifice, contrived to open one way; but which, the more forcibly it is pressed the other way, the closer it shuts the aperture, like the clapper of a bellows: so that it either admits the entrance of a fluid into the tube, or vessel, and prevents its return; or permits it to escape, and prevents its re-entrance.

Valves are of great use in the air-pump, and other wind-machines; in which they are usually made of pieces of bladder. In hydraulic engines, as the emboli or suckers of pumps, they are mostly of strong leather, of a round figure, and fitted to shut the apertures of the barrels or pipes. Sometimes they are made of two round pieces of leather enclosed between two others of brass; having divers perforations, which are covered with another piece of brass, moveable upwards and downwards, on a kind of axis, which goes through the middle of them all. Sometimes they are made of brass, covered over with leather, and furnished with a fine spring, which gives way upon a force applied against it; but upon the ceasing of that, returns the valve over the aperture. See PUMP, and HYDROSTATICS.

VALVE OF THE COLON, in anatomy. The end of the iliac portion of the small intestine enters the large one obliquely, and projects somewhat within it, so as to form a kind of valve, called from its discoverer the valve of Tulpius, also the valve of the cœcum.

VALVES, in anatomy. (*valva*, from *valveo*, to fold up.) Thin and transparent membranes, situated within certain vessels, as arteries, veins, and absorbents, whose office appears to be to prevent the contents of the vessel from flowing back.

VALVES (Semilunar). See SEMILUNAR VALVES.

VALVES (Tricuspid). See TRICUSPID VALVES.

VALVES (Triglochin). See TRICUSPID VALVES.

VALVE, VALVELET, or VALVULE, in botany. Valva s. valvula. There seems to be no occasion to use the diminutives in English; for Linnéus makes no distinction between valva and valvula. He uses valvula capsulæ, and valva glumæ; but more frequently the diminutive. Valvula—paries quo fructus tegitur externe. The outer coat, shell or covering of a capsule or other pericarp; or the several pieces which compose it. There seems to be an impropriety in explaining valvula by paries: it is rather the door or opening by which the seeds are to go out or escape. If a pericarp be entire, it is said to be univalve, or to consist of one valve. If it be divided, according to the number of pieces or divisions, it is called bivalve or two-valved; trivalve or three-valved, &c.

The leaflets composing the calyx and corol in grasses are also named valves: as are also the substances or scales which close the tube in some flowers: as in borage and other asperifoliæ.

VA'LUELESS. *a.* Being of no value (*Shakspeare*).

VA'LUER. *s.* He that values (*Fell*).

VALVULA, in anatomy. (dim. of *valva*.) A little valve: a valvule.

VALVULA COLI. See VALVE OF THE COLON.

VALVULA EUSTACHII. A membranous semilunar valve, which separates the right auricle from the inferior vena cava, first described by Eustachius.

VALVULA TULPII. See VALVE OF THE COLON.

VALVULÆ CONNIVENTES. The semilunar folds formed of the villous coat of the intestinum duodenum, and jejunum. Their use appears to be, to increase the surface of the intestines.

VALVULÆ MITRALES. See MITRAL VALVES.

VALVULÆ SEMILUNARES. See SEMILUNAR VALVES.

VALVULÆ TRICUSPIDALES. See TRICUSPID VALVES.

VALVULÆ TRIGLOCHINES. See TRICUSPID VALVES.

VAMP. *s.* The upper leather of a shoe (*Ainsworth*).

To VAMP. *v. a.* To piece an old thing with some new part (*Bentley*).

VA'MPER. *s.* (from *vamp*.) One who pieces out an old thing with something new.

VAMPIRE, in zoology. See VESPERTILIO.

VAMPIRES, in the ancient superstitions, a name given to the mischievous apparitions of dead men; who, after they have been dead for many years, are seen to return, to speak, to walk, to infest villages, maltreat men and animals, suck the blood of their neighbours, &c. For an amusing summary of some of these legendary stories, see the Athenæum, vol. iii. pa. 520.

From the obvious relation to this class of imaginary beings, it happens, that one who affects great attachment to another, and hangs about him only that he may ruin his peace, his reputation, or his fortune, and thus suck his blood, is called a vampire.

VAN. *s.* (from *avant*, French.) 1. The front of an army, the first line (*Dryden*). 2. (*van*, Fr.) Any thing spread wide by which a wind is raised; a fan (*Broome*). 3. A wing with which the air is beaten (*Milton*).

To VAN. *v. a.* (from *vannus*, Lat.) To fan; to winnow: not in use (*Bacon*).

VAN, VANT, or VAUNT, a term derived from the French avant, or avaunt, signifying before, or foremost of any thing; thus we say, the van-guard of an army, &c.

VAN, in sea-language, denotes the foremost division of any naval armament, or the part that usually leads the way to battle, or advances first in the order of sailing.

VAN, a strong town of Curdistan, with a castle on a mountain, in which the Turks keep a numerous garrison. It is governed by a beglerbeg, and seated on a lake of its name (120 miles in circumference), 80 miles E. by S. of Betlis. Lon. 44. 30 E. Lat. 37. 10 N.

VANBRUGH (Sir John), an able dramatic writer, was born in Cheshire, of a good family: he became eminent by his poetical talents, and his skill in architecture; to both which he discovered an early propensity. His first comedy, called The Relapse; or, Virtue in Danger, was acted with great applause in 1697, which encouraged him to proceed in the same line. The reputation which he gained by his comedies was rewarded with greater advantages than usually arise from the profits of writing for the stage. He was appointed Clarenceux king of arms; a place which he held some time, and at last disposed of. In 1716 he was made surveyor of the works at Greenwich hospital; he also held the place of comptroller-general of his majesty's works, and surveyor of the gardens and waters. Several noble structures were raised under his direction, as Blenheim, in Oxfordshire; Claremont, in Surry; the old Military Academy, in Woolwich arsenal; the old Opera-house, in the Haymarket. He was the author of eleven comic pieces: he died in 1726.

This writer was noted for the heaviness of his buildings, and the lightness of his comedies. Every one knows the proposed inscription for his gravestone:

> "Lie heavy on him earth; for he
> Laid many a heavy load on thee."

VANDELLIA, in botany, a genus of the class didynamia, order angiospermia. Calyx mostly four-cleft; corol ringent; two outer filaments from the disk of the corol; anthers connected by pairs; capsule one-celled, many-seeded. Two species.

1. V. diffusa. A plant with herbaceous stem, and axillary flowers, of Montserrat.

2. V. pratensis. A native of South America.

VAN-DIEMEN'S LAND. See DIEMEN.

VAN DYCK (Sir Anthony), a most illustrious painter, was born at Antwerp in 1599, and trained under the no less illustrious Rubens. Afterwards he went to Italy, staid a short time at Rome, and then removed to Venice; where he attained the beautiful colouring of Titian, Paul Veronese, and the Venetian school: proofs of which appeared in the pictures he drew at Genoa, where he left behind him many excellent pieces. After a few years spent abroad, he returned to Flanders, with a manner of painting so noble, natural, and easy, that Titian himself was hardly his superior; and no other master in the world equal to him in portraits. The prince of Orange, hearing of his fame, sent for him to draw the pictures of his princess and children. Cardinal Richelieu invited him to France; where, not liking his entertainment, he staid but a little time. Then he came over to England, soon after Rubens had left it, and was entertained in the service of Charles I. who conceived a marvellous esteem for his works; honoured him with knighthood; presented him with his own picture, set round with diamonds; assigned him a considerable pension; sate very often to him for his portrait; and was followed by most of the nobility and gentry of the kingdom. He acquired great riches by his profession; married one of the fairest ladies of the English court, a daughter of the lord Ruthen, earl of Gowry; and, though he had little with her except her beauty and her quality, lived in a state and grandeur answerable to her birth. He grew weary, towards the latter end of his life, of the continued trouble that attended face-painting; and, being desirous of immortalizing his name by some more glorious undertaking, went to Paris, in hopes of being employed in the grand gallery of the Louvre. Not succeeding there, he returned to England; and proposed to the king, by his friend sir Kenelm Digby, to make cartoons for the banqueting-house at Whitehall. The subject was to have been the institution of the order of the garter, the procession of the knights in their habits, with the ceremony of their instalment, and St. George's feast: but his demand of 8000*l*. being thought unreasonable, while the king was treating with him for a less sum, the gout and other distempers put an end to his life. He died in 1641, aged forty-two years; and was buried in St. Paul's cathedral, where his monument, whatever it was, perished by the fire.

VANE, in a ship, &c. a thin slip of some kind of matter, placed on high in the open air, turning easily round on an axis or spindle, and veered about by the wind, to shew its direction or course. See WEATHERCOCK.

VANES, in mathematical or philosophical instruments, are sights made to slide and move upon cross-staves, fore-staves, quadrants, &c.

VANELLOE. A long, flattish pod, containing under a wrinkled brittle shell, a reddish brown pulp, with small shining black seeds. The plant which affords this fruit is the epidendrum vanilla; scandens, foliis ovato-oblongis nervosis sessilibus caulinis, cirrhis spiralibus of Linnéus. Vanelloes have an unctuous aromatic taste, and a fragrant smell like that of some of the finer balsams heightened with musk. Although chiefly used as perfumes, they are said to possess aphrodisiac virtues. See EPIDENDRUM.

VA'NGUARD. *s.* (*avant garde*, French.) The front, or first line of the army (*Milton*).

VANGUERIA, in botany, a genus of the class pentandria, order monogynia. Calyx five-toothed; corol with a globular tube, and hairy throat; stigma bilamellate; berry inferior, four or six-seeded. One species only, a tree with glabrous branches, opposite entire leaves, and eatable fruit, supposed to be a native of China.

VANILLA. See EPIDENDRUM and VANELLOE.

To VA'NISH. *v. n.* (*vanesco*, Lat.) 1. To lose perceptible existence (*Sidney*). 2. To pass away from the sight; to disappear (*Shakspeare*). 3. To pass away; to be lost (*Atterbury*).

VANISHING QUANTITIES. See Evanescent.

VA'NITY. *s.* (*vanitas*, Lat.) 1. Emptiness; uncertainty; inanity (*Eccles.*). 2. Fruitless desire; fruitless endeavour (*Sidney*). 3. Trifling labour (*Raleigh*). 4. Falsehood; untruth (*Davies*). 5. Empty pleasure; vain pursuit; idle show; unsubstantial enjoyment (*Pope*). 6. Ostentation; arrogance (*Raleigh*). 7. Petty pride; pride exerted upon slight grounds.

VANLOO (Carlo), a distinguished painter, was born at Nice in 1705. After visiting Turin and Rome, he went to Paris with his brother John in 1719. In 1723 he gained the academy's first medal for design, and in the year following the first prize for painting. In 1735 he was received into the academy; he was afterwards honoured with the order of St. Michael, and named first painter to the king: he died in 1765.

Vanloo (John Baptist), brother to the preceding, a celebrated historic and portrait painter, was born about 1684; he died in 1746. His son, Louis Michael, became principal painter to the king of Spain, and Charles Philip to the king of Prussia.

Vanloo (Michael), nephew of the preceding, and knight of the order of St. Michael; an artist of considerable excellence. His historical pieces have genuine merit, and his portraits are elegant and agreeable.

Vanloo (Charles Andrew), brother and pupil of John Baptist, was born in 1705; he is known by the brilliancy and freshness of his colours, and great exactness of proportion; he was one of the professors of the academy for painting, at Paris: he died in 1765.

VANNES, a seaport of France, in the department of Morbihan, with a bishop's see. Its principal trade is in wheat and rye for Spain; and it has a trade also in pilchards and sea-eels. It is seated on the gulf of Morbihan, three miles from the Atlantic, 56 S.W. of Rennes, and 255 W. by S. of Paris. Lon. 2. 46 W. Lat. 47. 39 N.

To VA'NQUISH. *v. a.* (*vancre*, Fr.) 1. To conquer; to overcome (*Clarendon*). 2. To confute (*Atterbury*).

VA'NQUISHER. *s.* (from *vanquish.*) Conqueror; subduer (*Shakspeare*).

VA'NTAGE. *s.* (from *advantage.*) 1. Gain; profit (*Sidney*). 2. Superiority; state in which one hath better means of action than another (*South*). 3. Opportunity; convenience (*Shakspeare*).

To Va'ntage. *v. a.* (from *advantage.*) To profit: not in use (*Spenser*).

VA'NTBRASS. *s.* (*avant bras*, French.) Armour for the arm (*Milton*).

VA'PID. *a.* (*vapidus*, Lat.) Dead; having the spirit evaporated; spiritless; mawkish; flat (*Arbuthnot*).

VA'PIDNESS. *s.* (from *vapid.*) The state of being spiritless; mawkishness.

VAPORA'TION. *s.* (*vaporatio*, Lat.) The act of escaping in vapours.

VA'PORER. *s.* (from *vapour.*) A boaster; a braggart (*Gov. of the Tongue*).

VA'PORISH. *a.* (from *vapour.*) 1. Vaporous; full of vapours (*Sandys*). 2. Splenetic; humoursome; peevish (*Pope*).

VA'POROUS. *a.* (*vaporeux*, Fr.) 1. Full of exhalations; fumy (*Derham*). 2. Windy; flatulent (*Arbuthnot*).

VA'POUR. *s.* (*vapor*, Lat.) 1. Any thing exhalable; any thing that mingles with the air (*Milton*). 2. Fume; steam (*Newton*). 3. Wind; flatulence (*Bacon*). 4. Mental fume; vain imagination; fancy unreal (*Hammond*). 5. (In the plural.) Diseases caused by flatulence, or by diseased nerves; hypochondriacal maladies; melancholy; spleen (*Addison*).

To Va'pour. *v. n.* (*vaporo*, Latin.) 1. To pass in a vapour or fume; to fly off in evaporations (*Donne*). 2. To emit fumes (*Bacon*). 3. To bully; to brag (*Glanville*).

To Va'pour. *v. a.* To effuse, or scatter in fume or vapour (*Donne*).

Vapour, in meteorology, a thin humid matter, which, being rarefied to a certain degree by the action of heat, ascends to a particular height in the atmosphere, where it is suspended, until it returns in the form of dew, rain, snow, &c. On this subject we refer our readers to the articles Evaporation and Meteorology.

Vapour bath. See Baths and Bathing.

VAR, a department of France, including part of the late province of Provence. It takes its name from a river which has its source in the county of Nice, and falls into the Mediterranean, four miles W. of Nice.

VARALLO, a strong town of Italy, in the Milanese, 28 miles N.N.W. of Novara, and 47 W.N.W. of Milan. Lon. 8. 25 E. Lat. 45. 42 N.

VARAMBON, a town of France, in the department of Ain, seated on the Ain, 14 miles N.N.W. of Bourg. Lon. 5. 15 E. Lat. 46. 23 N.

VARENIUS (Bernard), a Dutch physician, who wrote in Latin an excellent System of Universal Geography; which was re-published with great improvements, by sir Isaac Newton, in 1672, and has been translated into English, in 2 vols. 8vo. He is also the author of a curious description of Japan, and the kingdom of Siam, in Latin. He died in 1660.

VARI. See Jonthi.

Vari, in zoology. See Lemur.

VARIA. The small-pox. See Variola.

VA'RIABLE. *a.* (*variable*, Fr. *variabilis*, Latin.) Changeable; mutable; inconstant (*Shakspeare*).

Variable quantities, in geometry and analytics, denote such as are either continually increasing or diminishing; in opposition to those which are constant, remaining always the same. Thus, the abscisses and ordinates of an ellipsis, or other curve line, are variable quantities, because they vary or change their magnitudes together. Some quantities may be variable by themselves alone, while those connected with them are constant: as the abscisses of a parallelogram, whose ordinates may be considered as all equal, and therefore constant. The diameter of a circle and the parameter of a conic section are constant, while their abscisses are variable. Variable quantities (see FLUXIONS) are usually denoted by the last letters of the alphabet z, y, x, while the constant ones are denoted by the first letters a, b, c.

VA′RIABLENESS. *s.* (from *variable.*) 1. Changeableness; mutability (*Addison*). 2. Levity; inconstancy (*Clarissa*).

VA′RIABLY. *ad.* (from *variable.*) Changeably; mutably; inconstantly; uncertainly.

VA′RIANCE. *s.* (from *vary.*) Discord; disagreement; dissension (*Sprat*).

VARIANCE, in law, signifies any alteration of a thing formerly laid in a plea, or where the declaration in a cause differs from the writ, or from the deed upon which it is grounded. If there be a variance between the declaration and the writ, it is error, and the writ shall abate; and if there appear to be a material variance between the matter pleaded and the manner of pleading it, this is not a good plea, for the manner and matter of pleading ought to agree in substance, or there will be no certainty in it. Cro. Jac. 479.

VA′RIATION. *s.* (*variatio*, Latin.) 1. Change; mutation; difference from itself (*Bentley*). 2. Difference; change from one to another (*Woodward*). 3. Successive change (*Shakspeare*). 4. (In grammar.) Change of termination of nouns (*Watts*). 5. Change in natural phenomenons (*Wotton*). 6. Deviation (*Dryden*).

VARIATION, in astronomy. The variation of the moon, called by Bulliald the reflection of her light, is the third inequality observed in the moon's motion; by which, when out of the quadratures, her true place differs from her place twice equated. See ASTRONOMY.

Newton makes the moon's variation to arise partly from the form of her orbit, which is an ellipsis; and partly from the inequality of the spaces which the moon describes in equal times, by a radius drawn to the earth.

To find the greatest variation.—Observe the moon's longitude in the octants; and to the time of observation compute the moon's place twice equated; then the difference between the computed and observed place is the greatest variation = (35′ 41″·6) sin. 2 (☽ − ☉).

Tycho makes the greatest variation 40′ 30″; and Kepler makes it 51′ 49″. But Newton makes the greatest variation, at a mean distance between the sun and the earth, to be 35′ 10″; at the other distances, the greatest variation is in a ratio compounded of the duplicate ratio of the times of the moon's synodical revolution directly, and the triplicate ratio of the distance of the sun from the earth inversely. And therefore in the sun's apogee, the greatest variation is 33′ 14″, and in his perigee 37′ 11″; provided that the eccentricity of the sun is to the transverse semidiameter of the orbis magnus, as $16\frac{15}{16}$ to 1000. Or, taking the mean motions of the moon from the sun, as they are stated in Dr. Halley's tables, then the greatest variation at the mean distance of the earth from the sun will be 35′ 41″·6, in the apogee of the sun 33′ 27″, and in his perigee 36′ 51″.

VARIATION OF CURVATURE, in geometry, is used for that inequality or change which takes place in the curvature of all curves except the circle, by which their curvature is more or less in different parts of them. And this variation constitutes the quality of the curvature of any line.

Sir Isaac Newton makes the index of the inequality, or variation of curvature, to be the ratio of the fluxion of the radius of curvature to the fluxion of the curve itself: and Maclaurin, to avoid the perplexity that different notions, connected with the same terms, occasions to learners, has adopted the same definition; but he suggests, that this ratio gives rather the variation of the ray of curvature, and that it might have been proper to have measured the variation of curvature rather by the ratio of the fluxion of the curvature itself to the fluxion of the curve; so that, the curvature being inversely as the radius of curvature, and consequently its fluxion as the fluxion of the radius itself directly, and the square of the radius inversely, its variation would have been directly as the measure of it according to Newton's definition, and inversely as the square of the radius of curvature.

According to this notion, it would have been measured by the angle of contact contained by the curve and circle of curvature, in the same manner as the curvature itself is measured by the angle of contact contained by the curve and tangent. The reason of this remark may appear from this example: the variation of curvature, according to Newton's explication, is uniform in the logarithmic spiral, the fluxion of the radius of curvature in this figure being always in the same ratio to the fluxion of the curve; and yet, while the spiral is produced, though its curvature decreases, it never vanishes; which must appear a strange paradox to those who do not attend to the import of sir Isaac Newton's definition.

The variation of curvature at any point of a conic section is always as the tangent of the angle contained by the diameter that passes through the point of contact, and the perpendicular to the curve at the same point; or to the angle formed by the diameter of the section, and of the circle of curvature. Hence the variation of curvature vanishes at the extremities of either axis, and is greatest when the acute angle, contained by the diameter passing through the point of contact and the tangent, is least.

When the conic section is a parabola, the variation is as the tangent of the angle, contained by the right line drawn from the point of contact to the focus, and the perpendicular to the curve. See CURVATURE.

From sir Isaac Newton's definition may be derived practical rules for the variation of curvature, as follows:

1. Find the radius of curvature, or rather its fluxion; then divide this fluxion by the fluxion of the curve, and the quotient will give the variation of curvature; exterminating the fluxions when necessary, by the equation of the curve, or perhaps by expressing their ratio by help of the tangent, or ordinate, or subnormal, &c.

2. Since $\frac{\dot{z}^3}{-\dot{x}\ddot{y}}$, or $\frac{\dot{z}^3}{-\ddot{y}}$ (putting $\dot{x}=1$) denotes the radius of curvature of any curve z, whose absciss is x, and ordinate y; if the fluxion of this is divided by $\dot{z}$, and $\dot{z}$ and $\ddot{z}$ are exterminated, the general value of the variation will come out $\frac{-3\dot{y}\ddot{y}^2+\dddot{y}(1+\dot{y}^2)}{\ddot{y}^2}$; then, substituting the values of $\dot{y}$, $\ddot{y}$, $\dddot{y}$ (found from the equation of the curve) into this quantity, it will give the variation sought.

Ex. Let the curve be the parabola, whose equation is $ax=y^2$. Here then $2y\dot{y}=a\dot{x}=a$, and $\dot{y}=\frac{a}{2y}$; hence $\ddot{y}=\frac{-a\dot{y}}{2yy}=\frac{-aa}{4y^3}$, and $\dddot{y}=\frac{-3aa\dot{y}}{2y^4}=\frac{3a^3}{8y^5}$. Therefore,

$$\frac{-3\dot{y}\ddot{y}^2+\dddot{y}(1+\dot{y}^2)}{\ddot{y}^2}=-3\dot{y}+\dddot{y}\times\frac{1+\dot{y}^2}{\ddot{y}^2}$$
$$=\frac{-3a}{2y}+\frac{3a^3}{8y^5}\times\left(1+\frac{aa}{4yy}\right)\times\frac{16y^6}{a^4}=\frac{6y}{a},$$

the variation sought.

VARIATION OF THE NEEDLE, in magnetism. Although the north pole of the magnet in every part of the world, when suspended, points towards the northern parts, and the south pole to the southern parts, yet it seldom points exactly north and south. The angle in which it deviates from due north and south is called the variation of the needle, or the variation of the compass; and this variation is said to be east or west, according as the north pole of the needle is eastward or westward of the meridian of the place. This deviation from the meridian is not the same in all parts of the world, but is different in different places, and it is almost perpetually varying in the same place. When the variation was first observed, the north pole of the magnetic needle declined eastward of the meridian of London, but it has since that time been changing towards the west; so that in the year 1657, the needle pointed due north and south: at present it declines towards the west, between 24° and 25°, and it seems to be still advancing westward. See DECLINATION and MAGNETISM.

VARIATIONS (Calculus of). See CALCULUS. To the references made under that article, we may now add Mr. Woodhouse's Treatise on Isoperimetrical Problems, and the Calculus of Variations; the first English work in which some of the branches of the modern analysis have ever been treated at all.

VARICELLA. (dim. of *varia*, the small-pox; so called from its being changeable.) Variola lymphatica. The chicken-pox. A genus of disease in the class pyrexiæ and order exanthemata of Cullen; known by moderate synocha; pimples bearing some resemblance to small-pox, quickly forming pustules, which contain a fluid matter, and after three or four days from their first appearance desquamate.

VARICOCELE. (from *varix*, a distended vein, and κηλη, a tumour.) A swelling of the veins of the scrotum or spermatic cord; hence it is divided into the scrotal varicocele, which is known by the appearance of livid and tumid veins on the scrotum; and varicocele of the spermatic cord, known by feeling hard vermiform vessels in the course of the spermatic cord. Varicocele mostly arises from excessive walking, running, jumping, wearing of trusses, and the like, producing at first a slight uneasiness in the part, which, if not remedied, continues advancing towards the loins.

VA'RICOUS. *a.* (*varicosus*, Latin.) Diseased with dilatation (*Sharp*).

To VA'RIEGATE. *v. a.* (*variegatus*, school Latin.) To diversify; to stain with different colours (*Woodward*).

VARIEGA'TION. *s.* (from *variegate.*) Diversity of colours (*Evelyn*).

VARI'ETY. *s.* (*varietié*, French; *varietas*, Latin.) 1. Change; succession of one thing to another; intermixture of one thing with another (*Newton*). 2. One thing of many by which *variety* is made (*Raleigh*). 3. Difference; dissimilitude (*Atterbury*). 4. Variation; deviation; change from a former state (*Hale*). 5. Many and different kinds (*Law*).

VARIETY, in botany. Varietas. Est planta mutata a causa accidentali. Varietates tot sunt, quot differentes plantæ ex ejusdem speciei semine sunt productæ. Species varietatum sunt, magnitudo, plenitudo, crispatio, color, sapor, odor. Philos. Bot.—A plant changed by some accidental cause. There are as many varieties as there are different plants produced from the seed of the same species. Varieties are size, fulness, curling, colour, taste, and smell.

In Delin. Pl. it is expressed more fully: thus, variation is a change in some less essential part or quality; as colour, size, pubescence, or age. Externally, by the plaiting or interweaving of the branches; by bundling or uniting of several stalks into one broad flat one; by the greater breadth, or narrowness, or curling of leaves; by becoming awnless, or smooth, or hirsute. Internally, by becoming mutilated in the corol, or having one larger than ordinary; by luxuriancy, multiplication, or fulness; by becoming proliferous, or crested; by bearing bulbs instead of seeds; or by being viviparous.

The usual causes of variation are climate, soil, exposure, heat, cold, winds, culture.

Variety is applied in a sense nearly similar to a multiplicity of species in the other departments of natural history. It implies a trivial deviation in the individual of a species from its general character.

VARIGNON (Peter), a celebrated French mathematician and priest, was born at Caen, in 1654, and died suddenly in 1722, at 68 years of age. He was the son of an architect in middling circumstances, but had a college education, being intended for the church. An accident threw a copy of Euclid's Elements in his way, which gave him a strong turn to that kind of learning. The study of geometry led him to the works of Des Cartes on the same science, and there he was struck with that new light which has from thence spread over the world.

He abridged himself of the necessaries of life to purchase books of this kind, or rather considered them of that number, as indeed they ought to be. What contributed to heighten this passion in him was, that he studied in private: for his relations observing that the books he studied were not such as were commonly used by others, strongly opposed his application to them. As there was a necessity for his being an ecclesiastic, he continued his theological studies, yet not entirely sacrificing his favourite subject to them.

At this time the abbé St. Pierre, who studied philosophy in the same college, became acquainted with him. A taste in common for rational subjects, whether physics or metaphysics, and continual disputations, formed the bonds of their friendship. They were mutually serviceable to each other in their studies. The abbé, to enjoy Varignon's company with greater ease, lodged him with himself; thus, growing still more sensible of his merit, he resolved to give him a fortune, that he might fully pursue his genius, and improve his talents; and, out of only 1800 livres a year, which he had himself, he conferred 300 of them upon Varignon.

The abbé, persuaded that he could not do better than go to Paris to study philosophy, settled there in 1686, with M. Varignon, in the suburbs of St. Jacques. There each studied in his own way; the abbé applying himself to the study of men, manners, and the principles of government; whilst Varignon was wholly occupied with the mathematics.

I, says Fontenelle, who was their countryman, often went to see them, sometimes spending two or three days with them. They had also room for a couple of visitors, who came from the same province. We joined together with the greatest pleasure. We were young, full of the first ardour for knowledge, strongly united, and, what we were not then perhaps disposed to think so great a happiness, little known. Varignon, who had a strong constitution, at least in his youth, spent whole days in study, without any amusement or recreation, except walking sometimes in fine weather. I have heard him say, that in studying after supper, as he usually did, he was often surprised to hear the clock strike two in the morning; and was much pleased that four hours rest were sufficient to refresh him. He did not leave his studies with that heaviness which they usually create; nor with that weariness that a long application might occasion. He left off gay and lively, filled with pleasure, and impatient to renew it. In speaking of mathematics, he would laugh so freely, that it seemed as if he had studied for diversion. No condition was so much to be envied as his; his life was a continual enjoyment, delighting in quietness.

In the solitary suburb of St. Jacques he formed, however, a connexion with many other learned men; as Du Hamel, Du Verney, De la Hire, &c. Du Verney often asked his assistance in those parts of anatomy connected with mechanics: they examined together the positions of the muscles and their directions; hence Varignon learned a good deal of anatomy from Du Verney, which he repaid by the application of mathematical reasoning to that subject.

At length, in 1687, Varignon made himself known to the public by a Treatise on New Mechanics, dedicated to the Academy of Sciences. His thoughts on this subject were, in effect, quite new. He discovered truths, and laid open their sources. In this work he demonstrated the necessity of an equilibrium, in such cases as it happens in, though the cause of it is not exactly known. This discovery Varignon made by the theory of compound motions, and is what this essay turns upon.

This new Treatise on Mechanics was greatly admired by the mathematicians, and procured the author two considerable places, the one of geometrician in the Academy of Sciences, the other of professor of mathematics in the college of Mazarine, to which he was the first person raised.

Varignon catched eagerly at the science of infinitesimals as soon as it appeared in the world, and became one of its most early cultivators. When that sublime and beautiful method was attacked in the academy itself (for it could not escape the fate of all innovations), he became one of its most zealous defenders, and in its favour he put a violence upon his natural character, which abhorred all contention. He sometimes lamented that this dispute had interrupted him in his enquiries into the integral calculation so far, that it would be difficult for him to resume his disquisition where he had left it off. He sacrificed infinitesimals to the interest of infinitesimals, and gave up the pleasure and glory of making a farther progress in them when called upon by duty to undertake their defence.

All the printed volumes of the academy bear witness to his application and industry. His works are never detached pieces, but complete theories of the laws of motion, central forces, and the resistance of mediums to motion. In these he makes such use of his rules, that nothing escapes him that has any connexion with the subject he treats.

Geometrical certainty is by no means incompatible with obscurity and confusion, and those are sometimes so great that it is surprising a mathematician should not miss his way in so dark and perplexing a labyrinth. The works of M. Varignon never occasion this disagreeable surprise, he makes it his chief care to place every thing in the clearest light; he does not, as some great men do, consult his ease by declining to take the trouble of being methodical, a trouble much greater than that of composition itself; he does not endeavour to acquire a reputation for profoundness, by leaving a great deal to be guessed by the reader.

He was perfectly acquainted with the history of mathematics. He learned it not merely out of curiosity, but because he was desirous of acquiring knowledge from every quarter. This historical knowledge is doubtless an ornament in a mathematician, but it is an ornament which is by no means without its utility. Indeed it may be laid down as a maxim, the more different ways the mind is occupied in upon a subject, the more it improves.

Though Varignon's constitution did not seem easy to be impaired, assiduity and constant application brought upon him a severe disease in 1705. Great abilities are generally dangerous to the possessors. He was six months in danger, and three years in a languid state, which proceeded from his spirits being almost entirely exhausted. He said that sometimes when delirious with a fever, he thought himself in the midst of a forest, where all the leaves of the trees were covered with algebraical calculations. Condemned by his physicians, his friends, and himself, to lay aside all study, he could not, when alone in his chamber, avoid taking up a book of mathematics, which he hid as soon as he heard any person coming. He again resumed the attitude and behaviour of a sick man, and seldom had occasion to counterfeit.

In regard to his character, Fontenelle observes, that it was at this time that a writing of his appeared, in which he censured Dr. Wallis for having advanced that there are certain spaces more than infinite, which that great geometrician ascribes to hyperbolas. He maintained, on the contrary, that they were finite. The criticism was softened with all the politeness and respect imaginable; but a criticism it was, though he had written it only for himself. He let M. Carré see it, when he was in a state that rendered him indifferent about things of that kind; and that gentleman, influenced only by the interest of the sciences, caused it to be printed in the memoirs of the Academy of Sciences, unknown to the author, who thus made an attack against his inclination.

He recovered from his disease; but the remembrance of what he had suffered did not make him more prudent for the future. The whole impression of his Project for a New System of Mechanics having been sold off, he formed a design to publish a second edition of it, or rather a work entirely new, though upon the same plan, but more extended. It must be easy to perceive how much learning he must have acquired in the interval; but he often complained that he wanted time, though he was by no means disposed to lose any. Frequent visits, either of French or of foreigners, some of whom went to see him that they might have it to say that they had seen him, and others to consult him and improve by his conversation; works of mathematics, which the authority of some, or the friendship he had for others, engaged him to examine, and which he thought himself obliged to give the most exact account of; a literary correspondence with all the chief mathematicians of Europe: all these obstructed the book he had undertaken to write. Thus a man acquires reputation by having a great deal of leisure time, and he loses this precious leisure as soon as he has acquired reputation. Add to this, that his best scholars, whether in the college of Mazarine or the Royal College (for he had a professor's chair in both), sometimes requested private lectures of him, which he could not refuse. He sighed for his two or three months of vacation, for that was all the leisure time he had in the year; no sooner were they come but he retired into the country, where his time was entirely his own, and the days seemed always quickly ended.

Notwithstanding his great desire of peace, in the latter part of his life he was involved in a dispute. An Italian monk, well versed in mathematics, attacked him upon the subject of tangents and the angle of contact in curves, such as they are conceived in the arithmetic of infinites; he answered by the last memoir he ever gave to the Academy, and the only one which turned upon a dispute.

In the last two years of his life he was attacked with an asthmatic complaint. This disorder increased every day, and all remedies were ineffectual. He did not, however, cease from any of his customary business; so that, after having finished his lecture at the college of Mazarine, on the 22d of December 1722, he died suddenly the following night.

His character, says Fontenelle, was as simple as his superior understanding could require. He was not apt to be jealous of the fame of others: indeed he was at the head of the French mathematicians, and one of the best in Europe. It must be owned, however, that when a new idea was offered to him, he was too hasty to object. The fire of his genius, the various insights into every subject, made too impetuous an opposition to those that were offered; so that it was not easy to obtain from him a favourable attention. His works that were published separately were, 1. Projet d'une Nouvelle Mechanique, 4to. Paris, 1687. 2. Des Nouvelles Conjectures sur la Pesanteur. 3. Nouvelle Mechanique ou Statique, 2 tom. 4to. 1725. His memoirs in the Memoirs of the Paris Academy are very numerous. (*Hutton's Dict.*)

VARILLAS (Antoine), a French historian, was born at Gueret, in 1624: he wrote a history of France, beginning with Louis XI. and ending with Henry III.; he published also Les Anecdotes de Florence, ou l'Histoire secrette de la Maison de Medicis, 1685; and

Histoire des Revolutiones arrivés en Europe en matiere de Religion, 1616: he died in 1696: he is a very unfair historian, especially in matters where religion is concerned.

VARIOLA. (from *varius*, changing colour, because it disfigures the skin.) The small-pox. A genus of disease in the class pyrexiæ and order exanthemata of Cullen; distinguished by synocha; eruption of red pimples on the third day, which on the eighth day contain puss, and drying, fall off in crusts.

It is a disease of a very contagious nature, supposed to have been introduced into Europe from Arabia, and in which there arises a fever, that is succeeded by a number of little inflammations in the skin, which proceed to suppuration, the matter formed thereby being capable of producing the disorder in another person. It makes its attack on people of all ages, but the young of both sexes are more liable to it than those who are much advanced in life; and it may prevail at all the seasons of the year, but in general is most prevalent in the spring and summer.

The small-pox is distinguished into the distinct and confluent, implying that in the former the eruptions are perfectly separate from each other, and that in the latter they run much into one another.

Both species are produced either by breathing air impregnated with the effluvia arising from the body of those who labour under the disease, or by the introduction of a small quantity of the variolous matter into the habit by inoculation; and it is probable that the difference of the small-pox is not owing to any difference in the contagion, but depends on the state of the person to whom it is applied, or on certain circumstances concurring with the application of it.

A variety of opinions have been entertained respecting the effect of the variolous infection on the fetus in utero; a sufficient number of instances, however, has been recorded, to ascertain that the disease may be communicated from the mother to the child. In some cases, the body of the child at its birth has been covered with pustules, and the nature of the disease has been most satisfactorily ascertained by inoculating with matter taken from the pustules. In other cases, there has been no appearance of the disease at the time of the birth, but an eruption and other symptoms of the disease have appeared so early, as to ascertain that the infection must have been received previously to the removal of the child from the uterus.

Four different states or stages are to be observed in the small-pox: first, the febrile; second, the eruptive; third, the maturative; and fourth, that of declination or scabbing, which is usually known by the name of secondary fever. When the disease has arisen naturally, and is of the distinct kind, the eruption is commonly preceded by a redness in the eyes, soreness in the throat, pains in the head, back, and loins, weariness and faintness, alternate fits of chillness and heat, thirst, nausea, inclination to vomit, and a quick pulse.

In some instances, these symptoms prevail in a high degree, and in others they are very moderate and trifling. In very young children, startings and convulsion are apt to take place a short time previous to the appearance of the eruption, always giving great alarm to those not conversant with the frequency of the occurrence.

About the third or fourth day from the first seizure, the eruption shews itself in little red spots (similar to flea-bites) on the face, neck, and breast, and these continue to increase in number and size for three or four longer, at the end of which time, they are to be observed dispersed over several parts of the body.

If the pustules are not very numerous, the febrile symptoms will generally go off on the appearance of the eruption, or they will become very moderate. It sometimes happens, that a number of little spots of an erysipelatous nature are interspersed amongst the pustules; but these generally go in again as soon as the suppuration commences, which is usually about the fifth or sixth day, at which period, a small vesicle containing an almost colourless fluid may be observed upon the top of each pimple. Should the pustules be perfectly distinct and separate from each other, the suppuration will probably be completed about the eighth or ninth day, and they will then be filled with a thick yellow matter; but should they run much into each other, it will not be completed till some days later.

When the pustules are very thick and numerous on the face, it is apt about this time to become much swelled, and the eyelids to be closed up, previous to which, there usually arises a hoarseness, and difficulty of swallowing, accompanied with a considerable discharge of viscid saliva. About the eleventh day, the swelling of the face usually subsides, together with the affection of the fauces, and is succeeded by the same in the hands and feet, after which the pustules break, and discharge their contents, and then becoming dry, they fall in crusts, leaving the skin which they covered of a brown red colour, which appearance continues for many days. In those cases where the pustules are large, and are late in becoming dry and falling off, they are very apt to leave pits behind them; but where they are small, suppurate quickly, and are few in number, they neither leave any marks behind them, nor do they occasion much affection of the system.

In the confluent small-pox, the fever which precedes the eruption is much more violent than in the distinct, being attended usually with great anxiety, heat, thirst, nausea, vomiting, and a frequent and contracted pulse, and often with coma or delirium. In infants, convulsive fits are apt to occur, which either prove fatal before any eruption appears, or they usher in a malignant species of the disease.

The eruption usually makes its appearance about the third day, being frequently preceded or attended with a rosy efflorescence, similar to what takes place in the measles; but the fever, although it suffers some slight remission on the coming out of the eruption, does not go off as in the distinct kind; on the contrary, it becomes increased after the fifth or sixth day, and continues considerable throughout the remainder of the disease.

As the eruption advances, the face being thickly beset with pustules, becomes very much swelled, the eyelids are closed up, so as to deprive the patient of sight, and a gentle salivation ensues, which towards the eleventh day is so viscid as to be spit up with great difficulty. In children, a diarrhœa usually attends this stage of the disease instead of a salivation, which is to be met with only in adults. The vesicles on the top of the pimples are to be perceived sooner in the confluent small-pox than in the distinct; but they never rise to an eminence, being usually flatted in; neither do they arrive to proper suppuration, as the fluid contained in them, instead of becoming yellow, turns to a brown colour.

About the tenth or eleventh day, the swelling of the face usually subsides, and then the hands and feet begin to puff up and swell, and about the same time the vesicles break, and pour out a liquor that forms into brown or black crusts, which, upon falling off, leave deep pits behind them that continue for life, and where the pustules have run much into each other, they then disfigure and scar the face very considerably.

Sometimes it happens that a putrescency of the fluids takes place at an early period of the disease, and shews itself in livid spots interspersed amongst the pustules, and by a discharge of blood by urine, stool, and from various parts of the body.

In the confluent small-pox, the fever, which, perhaps, had suffered some slight remission from the time the eruption made its appearance to that of maturation, is often renewed with considerable violence at this last mentioned period, which is what is called the secondary fever, and this is the most dangerous stage of the disease. It has been observed, even amongst the vulgar, that the small-pox is apt to appear immediately before or after the prevalence of the measles. Another curious observation has been made relating to the symptoms of these complaints, namely, that if, while a patient labours under the small-pox, he is seized with the measles, the course of the former is retarded till the eruption of the measles is finished. The measles appear, for instance, on the second day of the eruption of small-pox, the progress of this ceases till the measles terminate by desquamation, and then it goes on in the usual way. Several cases are however recorded in the Medical and Physical Journal, as likewise in the third volume of the Medical Commentaries, in which a concurrence of the small-pox and measles took place without the progress of the former being retarded. The distinct small-pox is not attended with danger, except when it attacks pregnant women, or approaches nearly in its nature to that of the confluent; but this last is always accompanied with considerable risk, the degree of which is ever in proportion to the violence and permanence of the fever, the number of pustules on the face, and the disposition to putrescency which prevails.

When there is a great tendency this way, the disease usually proves fatal between the eighth and eleventh day, but in some cases, death is protracted till the fourteenth or sixteenth. The confluent small-pox, although it may not prove immediately mortal, is very apt to induce various morbid affections.

Both kinds of small-pox leave behind them a predisposition to inflammatory complaints, particularly to ophthalmia and visceral inflammations, but more especially of the thorax; and they not unfrequently excite scrophula into action which might otherwise have laid dormant in the system.

The regular swelling of the hands and feet upon that of the face subsiding, and its continuance for the due time, may be regarded in a favourable light.

The dissections which have been made of confluent small-pox have never discovered any pustules internally on the viscera. From them it also appears that variolous pustules never attack the cavities of the body, except those to which the air has free access, as the nose, mouth, trachea, the larger branches of the bronchiæ, and the outermost part of the meatus auditorius. In cases of prolapsus ani, they likewise frequently attack that part of the gut which is exposed to the air. They have usually shewn the same morbid appearances inwardly, as are met with in putrid fever, where the disease has been of the malignant kind. Where the febrile symptoms have run high, and the head has been much affected with coma or delirium, the vessels of the brain appear, on removing the cranium and dura mater, more turgid, and filled with a darker coloured blood than usual, and a greater quantity of serious fluid is found, particularly towards the base of the brain. Under similar circumstances, the lungs have often a darker appearance, and their moisture is more copious than usual. When no inflammatory affection has supervened, they are most usually found.

VARIOLARIA, in botany, a tribe of the cryptogamous genus LEPRARIA, which see.

VA'RIOUS. *a.* (*varius*, Latin.) 1. Different; several; manifold (*Milt.*). 2. Changeable; uncertain; unfixed; unlike itself (*Locke*). 3. Unlike each other (*Dryden*). 4. Variegated; diversified (*Milton*).

VA'RIOUSLY. *ad.* (from *various.*) In a various manner (*Bacon*).

VARIX. (from *varus*, i. e. *obtortus*). A dilatation of a vein. A genus of disease in the class locales and order tumores of Cullen; known by a soft tumour on a vein which does not pulsate. Varicose veins mostly become serpentine, and often form a plexus of knots, especially in the groins and scrotum.

VA'RLET. *s.* (*varlet*, old French, now *valet.*) 1. Anciently a servant or footman

(*Spenser*). 2. A scoundrel; a rascal (*Dryden*).

VA'RLETRY. *s.* (from *varlet.*) Rabble; crowd; populace (*Shakspeare*).

VA'RNISH. *s.* (*vernis*, French; *vernix*, Latin.) 1. A matter laid upon wood, metal, or other bodies, to make them shine (*Bacon*). 2. Cover; palliation.

To VA'RNISH. *v. a.* (*vernisser*, French.) 1. To cover with something shining (*Shakspeare*). 2. To cover; to conceal or decorate with something ornamental (*Dryden*). 3. To palliate; to hide with colour of rhetoric (*Denham*).

VARNISH, in the arts, a compound fluid, obtained in various ways, and which when spread over a solid substance adheres to it, and being dry, forms upon its surface a shining and transparent coat, impervious to air and moisture.

The best, perhaps the only substances that are capable of producing these effects, are resins; and as of these lac has been more generally employed, either alone or in conjunction with other materials, than the rest: many of the most valuable and important varnishes are denominated lacquers, and the mode of using them lacquering; those especially which are applied to the surface of metals, to heighten their colour as well as to afford them protection from the action of air and moisture.

The resins, or resinous substances that are chiefly made use of for the purpose of varnishing are the following; lac, benzoin, mastich, anime, elemi, sandarach, turpentine, gamboge, dragon's blood, copal, amber, asphalt, caoutchouc.

These substances are capable of solution in the one or the other, and some of them in all the three following menstrua; alkohol, or spirits of wine, volatile or essential oils, and fat or fixed oils.

Before a resin is dissolved in a fixed oil it is necessary to render the oil drying. For this purpose the oil must be boiled with metallic oxyds, in which process its mucilage combines with the metal, while the oil itself unites with the oxygen of the oxyd. To accelerate the drying of this varnish, it is necessary to add oil of turpentine.

The essential varnishes consist of a solution of some of the above resins in oil of turpentine. The varnish being applied, the essential oil flies off. This is chiefly used for paintings.

When resins are dissolved in alkohol the varnish dries very speedily, and is subject to crack; but this fault is corrected by adding a small quantity of turpentine to the mixture, which renders it brighter and less brittle when dry.

The coloured resins, or resinous gums, as gamboge, and dragon's blood, are used to give a tincture to the varnish.

We have already observed, that when fixed oils are used they must be previously rendered drying: and we may take an example of varnishes thus prepared from common amber varnish. To make this, half a pound of amber is kept over a gentle fire in a covered iron pot, in the lid of which there is a small hole, till it is observed to become soft, and to be melted together into one mass. As soon as this is perceived, the vessel is taken from off the fire, and suffered to cool a little; when a pound of good painter's varnish is added to it, and the whole suffered to boil up again over the fire, keeping it continually stirring. After this, it is again removed from the fire; and when it is become somewhat cool, a pound of oil of turpentine is to be gradually mixed with it. Should the varnish, when it is cool, happen to be yet too thick, it may be attenuated with more oil of turpentine. This varnish has always a dark-brown colour, because the amber is previously half-burned in this operation; but if it be required of a bright colour, amber-powder must be dissolved in transparent painter's varnish, in Papin's machine, by a gentle fire.

As an instance of the sort of varnishes with ethereal oils, may be adduced the varnish made with oil of turpentine. For making this, mastich alone is dissolved in oil of turpentine by a very gentle digesting heat, in close glass vessels. This is the varnish used for the modern transparencies employed as window-blinds, fire-screens, and for other purposes. These are commonly prints, coloured on both sides, and afterward coated with this varnish on those parts that are intended to be transparent. Sometimes fine thin calico, or Irish linen, is used for this purpose; but it requires to be primed with a solution of isinglass, before the colour is laid on.

Copal may be dissolved in genuine Chio turpentine, according to Mr. Sheldrake, by adding it in powder to the turpentine previously melted, and stirring till the whole is fused. Oil of turpentine may then be added, to dilute it sufficiently. Or the copal in powder may be put into a long-necked matrass with twelve parts of oil of turpentine, and digested several days on a sand-heat, frequently shaking it. This may be diluted with one-fourth or one-fifth of alcohol. Metallic vessels, or instruments, covered with two or three coats of this, and dried in an oven each time, may be washed with boiling water, or even exposed to a still greater heat, without injury to the varnish.

A varnish of the consistence of thin turpentine is obtained for aërostatic machines, by the digestion of one part of elastic gum, or caoutchouc, cut into small pieces, in thirty-two parts of rectified oil of turpentine. Previously to its being used, however, it must be passed through a linen cloth, in order that the undissolved parts may be left behind.

In spirit-varnish, it should be observed, that the most solid resins yield the most durable varnishes; but a varnish must never be expected to be harder than the resin naturally is of which it is made. Hence it is absurd to suppose that there are any incombustible varnishes, since there is no such thing as an incombustible resin. But the most solid resins by themselves produce brittle varnishes; therefore something of a softer substance must always be mixed with them, whereby this brittleness is diminished. For this purpose gum elemi, turpentine, or balsam of copaiva are employed in proper proportions. For the solution of these bodies the strongest alcohol ought to be used, which may very properly indeed be distilled over alkali, but must not have stood upon alkali. The utmost simplicity in composition with respect to the number of the ingredients in a formula is the result of the greatest skill in the art; hence it is no wonder that the greatest part of the formulas and recipes that we meet with are composed without any principle at all.

In conformity to these rules, a fine colourless varnish may be obtained, by dissolving eight ounces of gum sandarach and two ounces of Venice turpentine in thirty-two ounces of alcohol by a gentle heat. Five ounces of shell-lac and one of turpentine, dissolved in thirty-two ounces of alcohol by a very gentle heat, give a harder varnish, but of a reddish cast. To these the solution of copal is undoubtedly preferable in many respects. This is effected by triturating an ounce of powder of gum copal, which has been well dried by a gentle heat, with a drachm of camphor, and, while these are mixing together, adding by degrees four ounces of the strongest alcohol, without any digestion.

Between this and the gold varnish there is only this difference, that some substances that communicate a yellow tinge are to be added to the latter. The most ancient description of two sorts of it, one of which was prepared with oil, and the other with alcohol, is to be found in Alexius Pedemontanus Dei Secreti, Lucca, of which the first edition was published in the year 1557. But it is better prepared, and more durable, when made after the following prescription: take two ounces of shell-lac, of arnatto and turmeric each one ounce, and thirty grains of fine dragon's blood, and make an extract with twenty ounces of alcohol in a gentle heat.

Oil varnishes are commonly mixed immediately with the colours, but lac or lacquer varnishes are laid on by themselves upon a burnished coloured ground: when they are intended to be laid upon naked wood, a ground should be first given them of strong size, either alone or with some earthy colour, mixed up with it by levigation. The gold lacquer is simply rubbed over brass, tin, or silver, to give them a gold colour.

Pere d'Incarville has informed us, that the tree which affords the varnish of China is called tsi-chou by the Chinese. This tree is propagated by offsets. When the cultivator is desirous of planting it, he takes a branch, which he wraps up in a mass of earth, by means of flax. Care is taken to moisten this earth; the branch pushes out roots, and is then pruned and transplanted. This tree grows to the size of a man's leg.

The varnish is drawn in spring. If it be a cultivated tree, it affords three gatherings. It is extracted by incisions made in the spring; and when the varnish, which is received in shells, does not flow, several hog's bristles, moistened with water or saliva, are introduced into the wound, and cause it to run. When the tree is exhausted, the upper part of it is wrapped in straw, which is set on fire, and causes the varnish to precipitate to the bottom of the tree, where it flows out of perforations made for that purpose.

Those who collect the varnish set out before day-break, and place their shells beneath the apertures. The shells are not left longer than three hours in their place, because the heat of the sun would evaporate the varnish.

The varnish emits a smell, which the workmen are very careful to avoid respiring. It produces an effect which they call the bud of the varnish.

When the varnish issues from the tree it resembles pitch. By exposure to the air, it gradually becomes coloured, and is, at last, of a beautiful black.

The juice which flows from incisions made in the trunk and branches of the rhus toxicodendron possesses the same properties. It is a white milky fluid, which becomes black and thick by the contact of the air.

To make the varnish bright, it is evaporated by the sun; and a body is given to it with hog's gall and sulphat of iron.

The Chinese use the oil of tea, which they render drier by boiling it with orpiment, realgar, and arsenic.

To give lustre to a varnish after its application, it is rubbed with pounded pumice-stone and water; this is dried up with a cloth, and the work then rubbed with an oiled rag and tripoli. The surface is last of all cleaned with soft linen cloths, cleared of all greasiness with powder of starch, and rubbed bright with the palm of the hand.

We have said that lacquers or lacquer varnishes consist chiefly of those that are applied to metals to heighten their colour and bring it nearer to that of gold, as well as for protection. The metals commonly lacquered are brass and tin. The following is one of the best varnishes for this purpose.

Take of turmeric pulverised one ounce, and of saffron and arnatto each two drachms; infuse them at a moderate temperature for a week or more in a pint of rectified alkohol; separate the yellow tincture thus obtained by straining through a piece of clean linen, and add to the clean liquor three ounces of good seed lac: let the materials digest together for some days in a bottle, with frequent shaking, and then strain off the clear part, which is the lacquer. If the piece of brass to which it is to be applied is large, as a lock for example, it is to be warmed, and the lacquer, made also warm, is to be spread on with a brush: if the articles be small, they are to be made up into packets, then warmed, and afterwards dipped into the varnish.

VARNISH TREE. See RHUS.

VA'RNISHER. *s.* (from *varnish.*) 1. One whose trade is to varnish (*Boyle*). 2. A disguiser; an adorner (*Pope*).

VARRO (M. Terentius), a Roman consul, defeated at Cannæ, by Annibal. (See TERENTIUS.)—2. A Latin writer, celebrated for his great learning. He wrote no less than 500 different volumes, all now lost, except a treatise De re Rustica, and another, De lingua Latina, dedicated to Cicero. He was Pompey's lieutenant in his piratical wars, and obtained a naval crown. In the cival wars he was taken by Cæsar, and proscribed, but he escaped. He has been greatly commended by Cicero for his erudition. He died B. C. 28, in the 88th year of his age.—3. A native of Gaul, in the age of J. Cæsar. He translated into Latin verse the Argonautica of Apollonius Rhodius, with great correctness and elegance. He failed in his attempt to write satire. (*Horat.*)

VARRONIA, in botany, a genus of the class pentandria, order monogynia. Corol five-cleft; drupe with a four-celled nut. Nine species; shrubs of the West Indies or America.

VA'RVELS. *s.* (*varvelles*, Fr.) Silver rings about the legs of a hawk, on which the owner's name is engraved.

To VA'RY. *v. a.* (*varior*, Latin.) 1. To change; to make unlike itself (*Milton*). 2. To change to something else (*Waller*). 3. To make of different kinds (*Brown*). 4. To diversify; to variegate (*Milton*).

To VA'RY. *v. n.* 1. To be changeable; to appear in different forms (*Milton*). 2. To be unlike each other (*Collier*). 3. To alter; to become unlike itself (*Pope*). 4. To deviate; to depart (*Locke*). 5. To succeed each other (*Addison*). 6. To disagree; to be at variance (*Davies*). 7. To shift colours (*Pope*).

VA'RY. *s.* (from the verb.) Change; alteration: not in use (*Shakspeare*).

VAS DEFERENS. (from *defero*, to convey.) A duct which arises from the epididymis, and passes through the inguinal ring in the spermatic cord into the cavity of the pelvis, and terminates in the vesiculæ seminales. Its use is to convey the semen, or at least a seminal fluid secreted in the testicle, and brought to it by the epididymis into the vesiculæ seminales.

VASA. Vessels. In anatomy and botany. Constant vegetabilia triplicibus vasis. 1. Succosa liquorem vehunt: carrying the juices. 2. Utriculi alveolis succum conservant: secreting or receiving them. 3. Tracheæ aërem attrahunt: air-vessels. Philos. Bot. See ANATOMY, BOTANY, and PHYSIOLOGY.

VASA BREVIA. The arteries which come from the spleen, and run along the large arch of the stomach to the diaphragm.

VASA DEFERENTIA. See VAS DEFERENS.

VASA VORTICOSA. The contorted vessels of the choroid membrane.

VA'SCULAR. *a.* (from *vasculum*, Latin.) Consisting of vessels; full of vessels (*Arbuth.*).

VASCULI'FEROUS. *a.* (*vasculum* and *fero*, Latin.) Such plants as have, beside the common calyx, a peculiar vessel to contain the seed, sometimes divided into cells (*Quincy*).

VASE, a term frequently used for ancient vessels dug from under ground, or otherwise found, and preserved in the cabinets of the curious. In architecture, the appellation vase is also given to those ornaments placed on corniches, sochles, or pedestals, representing the vessels of the ancients, particularly those used in sacrifice; as incense-pots, flower-pots, &c. They serve to crown or finish façades, or frontispieces; and hence called acroteria. The term vase, however, is more particularly used in architecture to signify the body of the Corinthian and Composite capital; otherwise called the tambour or drum, and sometimes the campana or bell.

VA'SSAL. *s.* (*vassal*, Fr. *vassallo*, Ital.) 1. One who holds by the will of a superiour lord (*Addison*). 2. A subject; a dependant (*Raleigh*). 3. A servant; one who acts by the will of another (*Shakspeare*). 4. A slave; a low wretch (*Shakspeare*).

VA'SSALLAGE. *s.* (*vasselage*, Fr.) The state of a vassal; tenure at will; servitude; slavery; dependance (*Dryden*).

VAST. *a.* (*vaste*, Fr. *vastus*, Lat.) 1. Large; great (*Clarendon*). 2. Vitiously great; enormously extensive or capacious (*Milton*).

VAST. *s.* (*vastum*, Lat.) An empty waste.

VASTA'TION. *s.* (*vastatio*, Lat.) Waste; depopulation (*Decay of Piety*).

VASTI'DITY. *s.* (*vastitas*, Lat.) Wideness; immensity. A barbarous word (*Shakspeare*).

VA'STLY. *ad.* (from *vast.*) Greatly; to a great degree (*South*).

VA'STNESS. *s.* (from *vast.*) Immensity; enormous greatness (*Bentley*).

VASTUS EXTERNUS, in anatomy. (*vastus*, so called from its size.) This large, thick, and fleshy muscle is situated on the outer side of the thigh; it arises, by a broad thick tendon, from the lower and anterior part of the great trochanter, and upper part of the linea asperia; it likewise adheres by fleshy fibres to the whole outer edge of that rough line. Its fibres descend obliquely forwards, and after it has run four or five inches downwards, we find it adhering to the anterior surface and outer side of the cruræus, with which it continues to be connected to the lower part of the thigh, where we see it terminating in a broad tendon, which is inserted into the upper part of the patella laterally, and sends off an aponeurosis that adheres to the head of the tibia, and is continued down the leg.

VASTUS INTERNUS. This muscle, which is less considerable than the vastus externus, is situated at the inner side of the thigh, being separated from the last described muscle by the rectus.

It arises tendinous and fleshy from between the fore-part of the os femoris, and the root of the lesser trochanter, below the insertion of the psoas magnus, and the iliacus internus; and from all the inner side of the linea aspera. Like the vastus externus it is connected with the cruræus, but it continues longer fleshy than that muscle. A little above the knee we see its outer edge uniting with the inner edge of the rectus, after which it is inserted tendinous into the upper part and inner side of the patella, sending off an aponeurosis which adheres to the upper part of the tibia.

VA'STY. *a.* (from *vast.*) Large; enormously great (*Shakspeare*).

VAT. *s.* (*vat*, Dutch; ꝼaꞇ, Sax.) A vessel in which liquors are kept in the immature state.

VATICA, in botany, a genus of the class dodecandria, order monogynia. Calyx five-cleft; petals five; anthers fifteen, sessile, four-celled. One species only, vatica Chinensis: a tree of China and the Mysore, with alternate, heart-ovate, entire, glabrous leaves; panicled flowers; branches striate, or angular.

This seems to be the proper lac-insect tree, concerning which naturalists have so long differed in opinion. The reader will find a particular account of it, as well as of the manner of collecting this valuable secretion, in Buchanan's Journey, vol. i. pp. 170 and 343. See also the article Lac, in the present work.

VATICAN, a hill at Rome, near the Tiber and the Janiculum, lately admired for ancient monuments and pillars, and for the palace of the pope, which is said to consist of several thousand rooms: the parts of it most admired are the grand staircase, the pope's apartment, and especially the library, which is one of the richest in the world, both in printed books and manuscripts.

Vatican manuscript is one of the most celebrated manuscripts of the Greek version of the Bible now extant in the world. It was published at Rome by cardinal Carafa, at the command of Sixtus Quintus, in 1587; and in the preface, it is said to have been written *ante millesimum ducentesimum annum*, i. e. before 387; but Blanchini supposes it a few years later. A Latin edition from this manuscript, with notes, was printed at Rome in 1588, by Flam. Nobilius; and an edition, with the Greek and Latin, with the division of the verses, according to the Vulgate, and Nobilius's Latin notes, and the Greek scholia of Carafa, by J. Morinus, at Paris, in 1628. This manuscript is written in large or text letters, and has no distinguishing chapters, verses, words, nor any marks of accents. It is mutilated both at the beginning and end; and wants the first forty-six chapters of Genesis, thirty-two Psalms, viz. from the 105th to the 137th, and the latter part of the Epistle to the Hebrews, from chap. ix. ver. 14. with the other Epistles of Paul to Timothy, Titus, and Philemon, and the whole book of Revelation. It appears also, that the whole manuscript has been repaired, with fresh ink laid over the letters, which were disappearing through age. In the edition of Carafa the mutilated passages have been supplied from other copies.

It has been asserted, by two eye-witnesses, that this manuscript has undergone some alterations by a later hand. See Le Long's Biblioth. Sacra, cap. 3. sect. 4; and Wetstein's Prolegomena, Nov. Test. p. 24.

It is difficult to estimate the comparative value of this and the Alexandrian manuscript, in which thirty Psalms, a few chapters, and a few verses, are now lost, as well as parts of verses in different places; and in which there have been some rasures and insertions, as Grabe allows. If, as Grabe states it, that manuscript be the most respectable which comes the nearest to the Hexaplar copy, the Alexandrian manuscript seems to claim that merit in preference to its rival. But if it be thought a matter of superior honour to come nearer the old Greek version, unaltered by Origen, that merit seems to belong to the Vatican. For farther particulars, see the Prolegomena of Walton, Grabe, Wetstein, Mills, and Le Long, ubi supra.

VA'TICIDE. *s.* (*vates* and *cædo*, Lat.) A murderer of prophets.

To VATI'CINATE. *v. n.* (*vaticinor*, Lat.) To prophesy; to practise prediction (*Howel*).

VA'VASOUR. *s.* (*vavasseur*, Fr.) One who himself holding of a superiour lord, has others holding under him (*Camden*).

VAUBAN (Sebastian le Prestre, seigneur de), marshal of France, and the greatest engineer that country ever produced, was born in 1633. He displayed great abilities and skill in many sieges, and his services were rewarded with the first military honours. He was made governor of Lisle, commissary-general of the fortifications of France, and afterwards governor of the maritime parts of Flanders, and a marshal of France. He died in 1707, having brought fortification to a degree of perfection unknown before. His writings on these subjects are in the highest esteem.

VAUD (Pays de), a country of Switzerland, in the canton of Bern. It extends along the lake of Geneva, rising gradually from the edge of that lake, and is richly laid out in vineyards, corn-fields, and meadows, and chequered with continued villages and towns. It was wrested from the duke of Savoy, by the canton of Bern, in 1536. Lausanne is the capital.

VAUDABLES, a town of France, in the department of Puy de Donne, five miles from Issoire, and 240 S. by E. of Paris.

VAUDEMONT, a town of France, in the department of Meurthe, with a castle. It is seated in the most fertile country for corn in all Lorrain, 15 miles S.E. of Toul, and 18 S.W. of Nanci. Lon. 5. 57 E. Lat. 48. 26 N.

VA'UDEVIL. *s.* (*vaudeville*, Fr.) A song common among the vulgar; a ballad; a trivial strain.

VAUDOIS (Valleys of), in Piedmont. They lie N. of the marquisate of Saluzzo, and the chief town is Lucerna.

Vaudois, Valdenses, or Waldenses, in ecclesiastical history, a name given to a sect of reformers, who made their first appearance about the year 1160.

Of all the sects that arose in this century, none was more distinguished by the reputation it acquired, by the multitude of its votaries, and the testimony which its bitterest enemies bore to the probity and innocence of its members, than that of the Waldenses, so called, says Mosheim, from their parent and founder Peter Waldus. They were also called Leonists, from Leona, the ancient name of Lyons, where their sect took its rise. The more eminent persons of that sect manifested their progress towards perfection by the simplicity and meanness of their external appearance: hence, among other things, they wore wooden shoes, which in the French language are termed sabots, and had imprinted upon these shoes the sign of the cross, to distinguish themselves from other Christians; and on these accounts they acquired the denominations of Sabbatati and Insabbatati.

The origin of this famous sect, according to Mosheim, was as follows: Peter, an opulent merchant of Lyons, surnamed Valdensis, or Validisius, from Vaux, or Waldum, a town in the marquisate of Lyons, being extremely zealous for the advancement of true piety and Christian knowledge, employed a certain priest, called Stephanus de Evisa, about the year 1160, in translating from Latin into French the four Gospels, with other books of holy Scripture, and the most remarkable sentences of the ancient doctors, which were so highly esteemed in this century. But no sooner had he perused these sacred books with a proper degree of attention, than he perceived that the religion, which was now taught in the Roman church, differed totally from that which was originally inculcated by Christ and his apostles. Struck with this glaring contradiction between the doctrines of the pontiffs and the truths of the Gospel, and animated with zeal, he abandoned his mercantile vocation, distributed his riches among the poor (whence the Waldenses were called poor men of Lyons), and forming an association with other pious men, who had adopted his sentiments and his turn of devotion, he began, in the year 1180, to assume the quality of a public teacher, and to instruct the multitude in the doctrines and precepts of Christianity.

Beza, and other writers of note, who are followed by Dr. Macleane, the learned translator of Mosheim's history, give different accounts of the origin of the Waldenses; alleging, that it seems evident from the best records, that Valdus derived his name from the true Valdenses of Piedmont, whose doctrine he adopted, and who were known by the names of Vaudois and Valdenses, before he or his immediate followers existed. If the Valdenses or Waldenses had derived their name from an eminent teacher, it would probably have been from Valdo, who was remarkable for the purity of his doctrine in the eleventh century, and was the cotemporary and chief counsellor of Berengarius. But the truth is, that they derive their name from their valleys in Piedmont, which in their language were called vaux, and hence Vaudois, their true name: hence also Peter, or, as others call him, John of Lyons, was called in Latin Valdus, because he had adopted their doctrine; and hence the term Valdenses or Waldenses used, by those who write in English or Latin, in the place of Vaudois. The bloody inquisitor, Reinerus Sacco, who exerted such a furious zeal for the destruction of the Waldenses, lived but eighty years after Valdus of Lyons, and must, therefore, be supposed to know whether or not he was the real founder of the Valdenses or Leonists; and yet it is remarkable, that he speaks of the Leonists as a sect that had flourished above five hundred years; and mentions authors of note who make their antiquity ascend to the apostolic age. See the account given of Sacco's book by the Jesuit Gretser, in the Bibliotheca Patrum. See also Leger's Histoire Gen. des Eglises Vaudoises, cap. 2. 25, 26, 27.

But to return to the history of Peter Valdus. Soon after Peter had assumed the exercise of his ministry, the archbishop of Lyons, and the other rulers of the church in that province, vigorously opposed him. However, their opposition was unsuccessful; for the purity and simplicity of that religion which these good men taught, the spotless innocence that shone forth in their lives and actions, and the noble contempt of riches and honours, which was conspicuous in the whole of their conduct and conversation, appeared so engaging to all such as had any sense of true piety, that the number of their followers daily increased. They accordingly formed religious assemblies first in France, and afterwards in Lombardy, from whence they propagated their sect throughout the other provinces of Europe with incredible rapidity, and with such invincible fortitude, that neither fire, nor sword, nor the most cruel inventions of merciless persecution, could damp their zeal, or entirely ruin their cause.

The attempts of Peter Waldus and his followers were neither employed nor designed to introduce new doctrines into the church, nor to propose new articles of faith to Christians. All they aimed at was to reduce the form of ecclesiastical government, and the manners both of the clergy and people, to that amiable simplicity, and primitive sanctity, that characterized the apostolic ages, and which appear so strongly recommended in the precepts and injunctions of the divine author of our holy religion. In consequence of this design, they complained that the Roman church had degenerated, under Constantine the Great, from its primitive purity and sanctity. They denied the supremacy of the Roman pontiff, and maintained, that the rulers and ministers of the church were obliged, by their vocation, to imitate the poverty of the apostles, and to procure for themselves a subsistence by the work of their hands. They considered every Christian as, in a certain measure, qualified and authorized to instruct, exhort, and confirm the brethren in their Christian course, and demanded the restoration of the ancient penitential discipline of the church, i. e. the expiation of transgressions by prayer, fasting, and alms, which the new-invented doctrine of indulgences had almost totally abolished. They, at the same time, affirmed, that every pious Christian was qualified and entitled to prescribe to the penitent the kind or degree of satisfaction or expiation that their transgressions required; that confession made to priests was by no means necessary, since the humble offender might acknowledge his sins, and testify his repentance to any true believer, and might expect from such the counsel and admonition which his case demanded. They maintained, that the power of delivering sinners from the guilt and punishment of their offences belonged to God alone; and that indulgences, of consequence, were the criminal inventions of sordid avarice. They looked upon the prayers, and other ceremonies that were instituted in behalf of the dead, as vain, useless, and absurd, and denied the existence of departed souls in an intermediate state of purification; affirming, that they were immediately, upon their separation from the body, received into heaven, or thrust down to hell. These, and other tenets of a like nature, composed the system of doctrine propagated by the Waldenses. It is also said, that several of the Waldenses denied the obligation of infant-baptism, and that others rejected water-baptism entirely; but Wall has laboured to prove, that infant-baptism was generally practised among them.

During the greatest part of the 17th century, those of them who lived in the valleys of Piedmont, and who had embraced the doctrine, discipline, and worship of the church of Geneva, were oppressed and persecuted, in the most barbarous and inhuman manner, by the ministers of Rome. This persecution was carried on with peculiar marks of rage and enormity in the years 1655, 1656, and 1696, and seemed to portend nothing less than the total extinction of that unhappy nation. The most horrid scenes of violence and bloodshed were exhibited in this theatre of papal tyranny; and the few Waldenses that survived were indebted for their existence and support to the intercession made for them by the English and Dutch governments, and also by the Swiss cantons, who solicited the clemency of the duke of Savoy in their behalf.

VAUGELAS (Claude Favre de), a French writer, was born at Chamberry in 1585. He had a concern in the great French dictionary, and was one of those who first corrected and regulated the French language. He wrote two excellent works, 1. Remarques sur la Langue Françoise, Paris, 1647. 2. Quinte Curce de la vie et des actions d'Alexandre le Grand, traduit du Latin, Paris, 1653. He died about 1655.

VAULT. *s.* (*vaulte*, Fr. *volta*, Ital.) 1. A continued arch (*Burnet*). 2. A cellar (*Shakspeare*). 3. A cave; a cavern (*Sandys*). 4. A repository for the dead (*Shakspeare*).

To VAULT. *v. n.* (*voûter*, Fr.) 1. To arch; to shape as a vault (*Shakspeare*). 2. To cover with an arch (*Milton*).

To VAULT. *v. a.* (*voltiger*, Fr.) 1. To leap; to jump (*Addison*). 2. To play the tumbler, or posturemaster.

VAULT. *s.* (from the verb.) A leap; a jump.

VAULT, in architecture, an arched roof, so contrived that the stones which form it sustain each other. Vaults are, on many occasions, to be preferred to soffits or ceilings, as they give a greater height and elevation, and are besides more firm and durable.

Salmasius observes, that the ancients had only three kinds of vaults. The first was the fornix, made cradle-wise; the second a testudo, i. e. tortoise-wise, which the French call cul de four, or oven-wise; and the third concha, or trumpet-wise. But the moderns have subdivided these three sorts into many more, to which they have given different names, according to their figures and uses; some of them are circular, and others elliptical.

Again, the sweeps of some are larger, others less, portions of a sphere. All such as are above hemispheres are called high, or surmounted vaults; and all that are less than hemispheres, are called low, or surbased vaults, or testudines.

In some vaults the height is greater than the diameter; in others it is less; others again are quite flat, and only made with haunses; others like ovens, or in the form of a cul de four, &c. and others growing wider as they lengthen, like a trumpet.

VAULTS (Master), are those that cover the principal parts of buildings, in contradistinction to the upper or subordinate vaults, which only cover some little part, as a passage or gate, &c.

VAULT (Double), is one that is built over another, to make the outer decoration range with the inner; or, to make the beauty and decoration of the inside consistent with that of the outside, leaves a space between the concavity of the one and the convexity of the other; instances of which we have in the dome of St. Peter's at Rome, St. Paul's at London, and in that of the Invalids at Paris.

VAULTS with compartments, are such whose sweep, or inner face, is enriched with pannels of sculpture, separated by platbands. These compartments, which are of different figures according to the vaults, and usually gilt on a white ground, are made with stone or brick walls, as in the church of St. Peter at Rome, or with plaister on timber vaults.

VAULTS (Theory of). A semicircular arch or vault, standing on two piedroits, or imposts, and all the stones that compose them, being cut, and placed in such manner as that their joints or beds, being prolonged, do all meet in the centre of the vault: it is evident that all the stones must be in the form of wedges, i. e. must be wider and bigger at top; by means of which they sustain each other, and mutually oppose the effort of their weight, which determines them to fall. The stone in the middle of the vaults, which stands perpendicular to the horizon, and is called the key of the vault, is sustained on each side by two contiguous stones, just as by two inclined planes; and, consequently, the effort it makes to fall is not equal to its weight. But still that effort is the greater, as the inclined planes are less inclined;

so that if they were infinitely little inclined, i. e. if they were perpendicular to the horizon as well as the key, it will tend to fall with its whole weight, and would actually fall but for the mortar. The second stone, which is on the right or left of the key-stone, is sustained by a third, which, by virtue of the figure of the vault, is necessarily more inclined to the second than the second is to the first; and consequently the second, in the effort it makes to fall, employs a less part of its weight than the first. For the same reason, the stones from the key-stone employ still a less and less part of their weight to the last; which, resting on a horizontal plane, employs no part of its weight, or, which is the same thing, makes no effort at all, as being entirely supported by the impost. Now, in vaults, a great point to be aimed at is, that all the voussoirs, or key-stones, make an equal effort towards falling. To effect this, it is visible, that as each (reckoning from the key to the impost) employs still a less and less part of its whole weight; the first, for instance, only employing one-half; the second, one-third; the third, one-fourth, &c. there is no other way of making those different parts equal, but by a proportionable augmentation of the whole; i. e. the second stone must be heavier than the first, the third than the second, &c. to the last; which should be infinitely heavier.

M. De la Hire demonstrates what that proportion is, in which the weight of the stones of a semicircular arch must be increased to be in equilibrio, or to tend with equal forces to fall, which is the firmest disposition a vault can have. The architects before him had no certain rule to conduct themselves by, but did all at random. Reckoning the degrees of the quadrant of a circle, from the key-stone to the impost, the extremity of each stone will take up so much the greater arch as it is farther from the key.

M. De la Hire's rule is, to augment the weight of each stone above that of the key-stone, as much as the tangent of the arch of the stone exceeds the tangent of the arch of half the key. Now the tangent of the last stone of necessity becomes infinite, and of consequence its weight should be so too; but, as infinity has no place in practice, the rule amounts to this, that the last stones should be loaded as much as possible, that they may the better resist the effort which the vault makes to separate them; which is called the shoot or drift of the vault. Mr. Parent has since determined the curve, or figure, which the extrados, or outside of a vault, whose intrados, or inside, is spherical, must have, that all the stones may be in equilibrio.

With regard to the theory in the more complex cases, see our articles ARCH and DOME. The mathematical reader may also advantageously consult Gregory's Mechanics, vol. i.; the treatise on arches and vaults at the end of Bossut's Mechanics; Dr. Hutton's treatise on bridges, &c. in the 1st vol. of his 8vo. Tracts, lately published; and M. Berard's treatise, entitled Statique des Voutes.

VAULT, in farriery. To vault a horse-shoe, is to forge it hollow, as in the case of Mr. St. Bel's shoe. But this sort of shoe spoils the feet; for the sole gradually assumes the form of the shoe, and the frog becomes every day more and more raised from the ground.

VA'ULTAGE. *s.* (from *vault.*) Arched cellar: not in use (*Shakspeare*).

VA'ULTED. *a.* (from *vault.*) Arched; concave (*Pope*).

VA'ULTER. *s.* (from *vault.*) A leaper; a jumper; a tumbler.

VA'ULTY. *a.* (from *vault.*) Arched; concave: a bad word (*Shakspeare*).

To VAUNT. *v. a.* (*vanter*, Fr.) To boast; to display with ostentation (*Spenser*).

To VAUNT. *v. n.* To play the braggart; to talk with ostentation; to boast (*Granville*).

VAUNT. *s.* (from the verb.) Brag; boast; vain ostentation (*Granville*).

VAUNT. *s.* (from *avant*, French.) The first part: not used (*Shakspeare*).

VA'UNTER. *s.* (*vanteur*, Fr.) Boaster; braggart (*Dryden*).

VA'UNTFUL. *a.* (*vaunt* and *full.*) Boastful; ostentatious (*Spenser*).

VA'UNTINGLY. *ad.* (from *vaunting.*) Boastfully; ostentatiously (*Shakspeare*).

VA'UNTMURE. *s.* (*avant mur*, Fr.) A false wall (*Knowles*).

VA'WARD. *s.* (*van* and *ward.*) Forepart.

UBERLINGIN, a free imperial city of Suabia, in the county of Furstenburg. The inhabitants, who are partly Roman catholics and partly protestants, carry on a great trade in corn, which they send to Swisserland; and not far hence are very famous baths. It is seated on a high rock, near the lake of Constance, 12 miles N. of Constance. Lon. 9. 10 E. Lat. 47. 50 N.

U'BERTY. *s.* (*ubertas*, Lat.) Abundance; fruitfulness.

UBES (St.), or SETUBAL, a fortified town of Portugal, in Estremadura, with a good harbour, defended by the fort of St. Jago. It is built on the ruins of the ancient Setobriga, at the head of a bay, near the mouth of the Zadaen. It has a fine fishery, and a very good trade, particularly in salt, of which a great quantity is sent to the colonies in America. It is seated at the end of a plain, five miles in length, extremely fertile in corn, wine, and fruits: the N. end bounded by a row of mountains, loaded with fine forests of pines, and other trees; and within are quarries of jasper of several colours, of which are made pillars and images, that take a very fine polish. It is 22 miles S.E. of Lisbon. Lon. 8. 54 W. Lat. 38. 22 N.

UBICA'TION. UBI'ETY. *s.* (from *ubi*, Latin.) Local relation; whereness (*Glanv.*).

UBIQUITARIANS. (formed from *ubique*, every-where.) In ecclesiastical history, a sect of Lutherans which rose and spread itself in Germany; and whose distinguishing doctrine was, that the body of Jesus Christ is every-where, or in every place. Brentius, one of the earliest reformers, is said to have first broached this error, in 1560. Luther himself, in his controversy with Zuinglius, had thrown out some unguarded expressions, that seemed to imply a belief of the omnipresence of the body of Christ; but he became sensible afterwards, that this opinion was attended with great difficulties, and particularly that it ought not to be made use of as a proof of Christ's corporeal presence in the eucharist. However, after the death of Luther, this absurd hypothesis was renewed, and dressed up in a specious and plausible form by Brentius, Chemnitius, and Andræas, who maintained the communication of the properties of Christ's divinity to his human nature. It is indeed obvious, that every Lutheran who believes the doctrine of consubstantiation, whatever he may pretend, must be an Ubiquitarian.

UBI'QUITARY. *a.* (from *ubique*, Latin.) Existing every where (*Howel*).

Ubi'quitary. *s.* (from *ubique*, Latin.) One that exists every where (*Hall*).

UBI'QUITY. *s.* (from *ubique*, Latin.) Omnipresence; existence at the same time in all places (*Hooker*).

UBY, or Pulo-Uby, an island in the Indian Ocean, at the entrance of the bay of Siam, twenty miles in circumference. It yields good water, and plenty of wood. Lon. 105. 56 E. Lat. 8. 25 N.

UCKER, a river of Germany, which issues from a lake of the same name, near Prenzlo, in the Ucker marche of Brandenburg, runs N. through Pomerania, and being joined by the Rando, enters the Frischen Haf, a bay of the Baltic.

UCRIANA, in botany, a genus of the class pentandria, order monogynia. Calyx five-toothed, superior; corol salver-shaped, with a very long tube, and swelling naked throat; anthers sessile; style clavate, hairy; stigma bilamellate; berry two-celled, many-celled. One species only, a shrub of Guiana, with square branches, lanceolate, very entire leaves, and flowers in terminal heads.

U'DDER. *s.* (uꝺeꞃ, Saxon.) The breast or dugs of a cow, or other large animal (*Prior*).

U'DDERED. *a.* (from *udder.*) Furnished with udders (*Gay*).

UDINA, or Udine, a city of Italy, capital of Friuli, with a citadel. It contains 16,000 inhabitants; and in 1750, on the suppression of the patriarchate of Aquileia, was made the see of an archbishop. A treaty between the Austrians and French was signed here in 1797. It is seated in a large plain, on the river and canal called La Roia, 20 miles N.W. of Aquileia, and 65 N.E. of Venice. Lon. 13. 3 E. Lat. 46. 12 N.

UDINSKOI, a town of Siberia, in the government of Irkutsk, seated on the Selinga, 150 miles E. of Irkutsk. Lon. 108. 20 E. Lat. 52. 0 N.

VEAL. *s.* (*veel*, a calf, old Fr.) The flesh of a calf killed for the table (*Gay*).

VECHT, a river that rises in Westphalia, near Munster, crosses the counties of Stenfort and Bentheim, and entering Overyssel, passes by Ommen, Hasselt, and Swartsluys, below which it enters the Zuider Zee.

Vecht, a river of Holland, which branches off from the old channel of the Rhine, at Utrecht, and enters the Zuider Zee, at Muyden.

VECHTA, a town and fortress of Westphalia, in the principality of Munster, on a river of the same name, 27 miles S. of Oldenburg, and 35 N.N.E. of Osnaburg.

VE'CTION. Vectita'tion. *s.* (*vectio*, *vectito*, Latin.) The act of carrying, or being carried (*Arbuthnot*).

VE'CTURE. *s.* (*vectura*, Latin.) Carriage.

Veda. (*wisdom*, *understanding*, Sanscrit; *videre*, Latin.) The name of the books which preeminently comprise the religious tenets of the Indians. This term has often been communicated to Europe through the medium of the Bengalee dialect, which having no such letter or sound as *V* is compelled to employ a *B* in its stead, and hence the words *Beids* or *Bedas*, for the more proper *Veids* or *Vedas*. Hence also *Benares* for *Venares*, and *Bahar* for *Vahar*, as well as *Bramin* for *Vramin*.

The sacred ordinances, or holy books of the Hindus, are distinguished by the general term Sastras, or *Shasters*, as it is often improperly called, which is derived from a Sanscrit root, importing *to ordain* or *establish*. The whole of the Sastras are very numerous; but there are six that are held in much higher veneration than the rest, and are hence called the *Great Sastras*, *Vidyas or Works of true Knowledge*. These six are the Veda, and Upa-Veda, the Anga, Purana, Dherma, and Dersana, which three last are denominated also Upansa.

Of these we will endeavour to give the reader as clear a notion as the short space to which we are limited will allow us. And will afterwards instance a few of those books which are regarded as of subordinate authority to the Great Sastras.

All these are written in the Sanscrit, a language once general in Hindustan, and possessing a surprising affinity in its radical terms to the Greek: it is peculiarly copious and elegant; but since the invasion of India by the Mahometans, has ceased to be spoken; and is now only studied as the sacred language of the Braminical religion, as the Hebrew is of the Jewish. So sacred, indeed, is this language held over the whole Asiatic peninsula, that no cast but that of the priesthood is permitted to study it or to read the books that it contains. The emperor Ackbar could not, either by promises or threats, prevail on the Bramins to disclose its mystical contents. But their firmness has at length yielded to the courtesy and philosophical solicitations of the English established in Hindustan; and foreigners, although none of the indigenous tribes, except the Bramins, have now frequent opportunities of consulting and translating the most sacred of these books, and a complete copy of the Veda, in the original, a most valuable and magnificent donation, was presented to the British Museum, in 1789, by colonel Polier, through the hands of sir Joseph Banks.

The *Veda* consists, in reality, of four distinct books; and hence it is often denominated disjunctively the *four Vedas*. They contain collectively a hundred thousand *as'loks* or stanzas of four lines each; for, like all very remote records, they are written in measured poetry, and peculiarly constitute the Hindu scriptures. Their subjects are divination, astronomy, natural philosophy, the creation of the world, religious ceremonies, prayers, morality and piety: and they include hymns in praise of the Supreme Being, and in honour of subaltern intelligences. The four Vedas are distinguished by the names of the Rik-veda, Yajur-veda, Sam-veda, and At'herva-veda; whence they are collectively denominated, by a combination of all these terms, Rikyajursamat'herva. The author of these books is not known; and hence they are supposed to have been divinely communicated; and to have issued from the four mouths of Brama, each of his mouths having contributed its proper book. The authenticity of the fourth book has been suspected by sir W. Jones, and Mr. Wilkins, from some particular passages it contains, which should seem to intimate that it is posterior to Vyasa, who gave them their present arrangement. Mr. Colebroke has candidly examined these passages; but thinks it probable that, whether authentic or not, some portions of it at least are as ancient as the compilation of the three others, while its name is certainly anterior to Vyasa's arrangement.

The *Upaveda*, or as containing four distinct books, it is in like manner called plurally, the *four Upavedas*, may be regarded as a commentary upon, or supplement to the preceding; *up* in Sanscrit being synonymous with the Latin *sub*, and importing inferiority. The names of the four Upavedas are Ayust, Gandarva, Dhanush, and St'hapatya. The first treats of medicine, and is supposed to have been delivered to mankind by Bramha Indra Dhanwantari, and five other deities. The second treats of music, and is said to have been invented or explained by Bharata. The third, composed by Viswamitra, treats of the fabrication and use of the weapons of the military tribe. The fourth, containing various treatises on the mechanical arts, was revealed by Viswacarman.

The *Anga*, or *body of learning*, consists of six books or single *angas*. They are supposed to have been written by different holy men: the first three treat of grammar; the fourth of religious ceremonies; the fifth of mathematics; and the sixth of difficult words and phrases in the Vedas.

To the *Anga*, succeeds the *Upanga*, as the *Upaveda* to the *Veda*. The Upanga, or supplement to the Anga, consists, as we have already observed, of the *Purana*, *Dherma*, and *Dersana*; the whole of which *Angas* and *Upangas* are not unfrequently denominated *Vedangas*, or *Veda systems of learning*. The *Puranas* are a series of mythological histories in blank verse, from the creation of the world to the supposed incarnation of Buddha, the predecessor of Brahma. The *Dherma*, or *Dhermas*, consists of various works relating to the jurisprudence of the Hindus. The *Dersana* contains a variety of works on different subjects of Hindu philosophy. The greater number of these are the acknowledged production of Vyasa; and especially the Bhagavat or Life of Krishna, constituting the eighteenth Purana. Others, and particularly in the *Dherma*, or books of law, are said to be the gift of *Menu*, the son or grandson of Brahma. A very important part of this last work has been translated into English by sir W. Jones, under the title of the *Institutes of Menu*. Yet a still more valuable, as being a more extensive, performance upon the same subject was planned by Mr. Hastings, in the laudable and liberal desire of obtaining a general code of the laws and customs of the Hindus. For this purpose he assembled Bramins from every part of the peninsula at Fort William in Calcutta; who, under his auspices, composed, from the Vedas and other authentic books, a general pandect in the Sanscrit language. This was translated, with scrupulous accuracy, into the Persian; and from the Persian, with the same scrupulous accuracy, it was rendered by Mr. Halhed into English; and published in 1777 under the title of "A Code of Gentoo Laws; or, Ordinations of the Pundits. From a Persian Translation made from the Original, and written in the Sancrit Language, 4to. London, 1776." It is one of the most valuable presents that Europe has ever received from Asia.

Among the chief of the inferior *Sastras*, or sacred books, may be mentioned the *Upanishads*, the *Sacred Poems*; and the *six philosophical Sastras*.

The *Upanishads*, or Holy Mysteries, consist of not less than fifty-two theological treatises, the titles of which, together with a short notice of their contents, are given by Mr. Colebroke in the *Asiatic Researches*. They appear to be, for the most part, extracts from the Vedas, and are acknowledged to contain the quintessence of Indian theology. The most esteemed and argumentative portion is entitled *Vedanta*. An important part of the Upanishads was translated from a Persian version into Latin a few years ago by M. Anquetil du Perron, under the title of *Oupnekat* (*id est Secretum Tegendum*), *opus ipsa in India rarissimum*, *&c.* Mr. Halhed, however, has given a better translation into English, which is deposited in the British Museum.

Of the *Sacred Poems* the most venerated are the *Ramayana*, a complete epic, on one continued and heroic action; somewhat interesting, but too complicated and bespangled with imagery. It is the work of Valmiki, the earliest of the Sanscrit bards. The next in celebrity, and perhaps superior to it in reputation for holiness, is the *Bharata* or *Mahabarata* of Vyasa, whom we have already mentioned as the arranger of the Vedas in their present form.

The six *philosophical Sastras* are the works of as many sages, each of whom has established his peculiar school, and has, even in the present day, an extensive train of disciples. Their names are as follow: 1. *Gautama*, who, if we may be allowed to run a parallel with the Grecian schools, may be compared with Aristotle; 2. *Canada* with Thales; 3. *Jaimini* with Socrates; 4. *Vyasa* with Plato; 5. *Capila* with Pythagoras; and 6. *Patangali* with Zeno.

Of the claims of these sacred books to a very remote antiquity, we know but little. The Bramins give to many of them, and especially to the Vedas and the Puranas, an age that would carry their origin to several thousand years before the Mosaic account of the creation. Sir William Jones, whose hypothesis has traced the Indian empire above 3,800 years from the present time, allots to the first and second Vedas a possible origin of 1580 years before the birth of our Saviour, and consequently a century before that of Moses: but he considers them to have been at that time in a state of traditional existence alone. He conceives the Institutes of Menu to have been composed about three hundred years later, and the Puranas about six hundred years after the Institutes; but that none of these were at such early periods in the form in which we have them at present. We have called this view of the subject *hypothetical*, because the data he alludes to are not established with a sufficient degree of certainty, and even the arguments which are drawn from them are far too nicely spun. It must be admitted, however, that the opinions of M. Freret and M. Bailly are nearly in unison with those of our distinguished countryman. Mr. Colebroke, on the contrary, regards the whole of these as about two centuries less ancient than sir William Jones: while in the opinion of other orientalists of great credit and learning, the pretensions of the Puranas are sunk to comparatively a modern date, and those of the Vedas themselves very considerably shaken. "The Puranas," says Mr. Wilford, (Asiatic Researches, vol. iv. p. 244.) "are certainly a modern compilation from valuable materials that I am afraid no longer exist. An astronomical observation of the heliacal rising of *Canopus*, mentioned in two of the Puranas, puts this beyond doubt." Mr. Bently (Id. viii. p. 240.) has followed a similar plan of calculation, and concludes, as the result of his argument, that "it must be evident that none of the *modern romances*, commonly called the Puranas, at least in the form they now stand in, are older than 684 years, but that some of them are the compilation of still later times."—Such opinion, so far as it relates to the eighteenth or last of the Puranas, the *Bhagavat*, or Life of Krishna, is even countenanced, indeed, by Mr. Colebroke, who intimates that the Pundits themselves are divided upon this subject: "I am myself," says he, "inclined to adopt an opinion, supported by many learned Hindus, who consider the celebrated *Sri* (or *Suryá*) *Bhagavata* as the work of a grammarian, supposed to have lived about six hundred years ago." *Asiat. Researches*, viii. p. 487.

These arguments and observations indirectly affect the supposed high antiquity of the *Vedas*, which is also rendered something more than suspicious by another fact. Mr. Wilkins, in his preface to the *Gita*, or songs of *Krishna*, observes, that Krishna, throughout the whole, makes mention of three Vedas only, and those the three first in their present order; the fourth, proving itself hereby a posterior work, makes mention of Krishna himself. This was remarked to several pundits who assisted in the translation, all of whom expressed great astonishment at it, as it had escaped the notice of all the numerous commentators on the Gita. It was to this fact we alluded, in noticing in an anterior passage the doubts that have long existed concerning the genuineness of the fourth, or *At'herva-veda*. We may shortly, however, expect far more important and satisfactory information upon these points, from the activity with which the Braminical legends are now sought after, examined, and translated by Asiatic scholars, both in their private capacity, and under the express orders of the Anglo-Indian government. Under these auspices a considerable part of the Ramayana has already been literally translated by those learned and indefatigable missionaries, Dr. Carey and Mr. Marshman, who expect to be able to complete this singular and bulky *mythos* of Valmiki, or Valmeeki, in ten volumes quarto; and will probably immediately afterwards turn a similar attention to the *Mahabarat* of Vyasa.

We noticed at the commencement of this article that a complete copy of the Vedas has been presented to the British Museum by Colonel Polier, through the hands of sir Joseph Banks. We shall add, as a document of great curiosity and interest, the letter which accompanied this magnificent donation, the original of which will be found in the British Museum, and which proves abundantly the difficulty that existed not many years ago of obtaining any certain knowledge in regard to the doctrines and literature of the Bramins. The letter is addressed to the enlightened and right honourable president of the Royal Society, and bears date, London, May 20, 1789.

"Since the English by their conquests and situation have become better acquainted with India, and its aborogines, the Hindous, the men of science throughout Europe have been very anxious of learning something certain of those sacred books which are the basis of the Hindu religion, and are known in India and elsewhere, under the name of the Baids (*Vaids*, *Vedas*). Many endeavours we know have been exerted to promote them, not only on the coast of Coromandel, but also in several parts of Bengal, and even at Benares: but hitherto this book could not be had in any of those places, complete and original; and nothing could be obtained but various shasters (*sastaras*) which are only commentaries of the Baids, to expound and explain such difficult passages as occur in them. During a long residence in the upper provinces of Hindustan, I made it also my business particularly to enquire for these books; and the more so, as I found doubts had arisen in Europe of their very existence. My researches at Awd, Lucknow, Agra, and Delhi were perfectly useless, and I could not in any of these places obtain what I wanted. Thus disappointed, I thought of sending to Jaypour for them, and was led to it from a knowledge that during the persecution the Hindus suffered throughout India, and which began in the twelfth year of the reign of Aurengzeb (the persecution was at its height in the year of the Hejira 1090, or of ours 1679, on account of the rebellion of Odaipour), the Rajah of *Anbair*, Ram Sing, from the important services rendered by his father the Great Jaysing, and his own attachment to the emperor, escaped, if not entirely, at least a great part of that persecution, which levelled to the ground all the Hindou places of worship in the provinces, and caused the destruction of all the religious books which could be found belonging to the Hindous. In consequence, I wrote to a correspondent at Jaypour, and soon learnt from him that the Baids were to be procured there, but that no copy could be obtained from the Brahmans, without an order or permission from Pertab Sing, who was then the Rajah of the place, and is the same prince who has so lately been engaged in war with Saindheah, and who is a grandson of that famous Rajah Tay Sing (Mirzah Rajah) who built Jaypour close to Anbair, and was the founder also of the famous observatories at Jaypour and Delhi, &c. and the editor of some curious astronomical tables which he gave to the world under the name of Mohammed Shah, then on the throne of Delhi. Having a small knowledge of the Rajah, whom I had seen a few years before, when he paid his court to Shah Alum, then encamped in the neighbourhood of Jaypour, I hesitated not in applying to him, by letter, for his permission to have the copy I so much wanted, and my friend Don Pedro de Silva, a worthy Portuguese physician in the service of the Rajah, undertook to deliver it, and to forward the application with his solicitations if necessary.

"*Pertal Sing*, on reading this letter, smiling, asked Don Pedro what use we Europeans could make of their holy books? on which he represented that it was usual with us to collect and consult all kinds of valuable books, of which we formed in Europe public libraries; and that the *Baids*, though much sought after, could not be met with any where else, and that, without his permission, the Brehmans refused to give a copy. On this the Rajah immediately issued an order such as we wanted, and, in the course of a year, paying the Brehmen transcribers at a certain rate for every hundred *ashlok* or stanza, I obtained the books which form the subject of this address, and which I had so long wished to possess.

"On my receiving those books at Lucknow, I still found many among the Europeans, who yet doubted their real authenticity, so strong were the prejudices entertained; from the little success we had hitherto had in procuring them, and from the doubts cast on their very existence by some modern travellers. But the books having been shown to the late Rajah Anundram, a learned Brehman, then at Lucknow, and a person well known to many in England, he immediately recognised them for true and authentic, and begged of me to leave them some time with him. At my request he afterwards separated them in manageable volumes, as they now are; and this I thought necessary, the better to preserve them, for originally they were in loose sheets; the Hindous, in general, seldom or never binding their sacred books, particularly the Baids. But I was obliged to promise him, which I readily did, they should not be bound in any kind of leather, but either in silk or velvet. Rajah Anundram further numbered the pages, and with his own hand wrote in Persian characters, for my information, not only the title-page of each volume, but also of each section, and the number of leaves they severally contain.

"By this it may be seen how little a dependance is to be placed in the assertions of those who have represented (*all*) the Brehmans as very averse to the communication of the principles of their religion, their mysteries, and holy books. In truth, I have always found those who were really men of science and knowledge very ready to impart and communicate what they knew to whoever would receive it and listen to them with a view of information, and not merely for the purpose of turning into ridicule whatever was not perfectly consonant to our European ideas, tenets, and even prejudices; some of which, I much fear, are thought by the Indians to be full as deserving of ridicule as any thing they have. At the same time it must be owned, that all the Hindous, the Brehmans only excepted, are forbidden by their religion from studying and learning the *Baids*; the *K'hatrys* alone being permitted to hear them read and expounded. This being the case, it will naturally be asked how came an European, who is not even of the same faith, to be favoured with what is denied even to a Hindou? To this the Brehmans readily reply, that being now in the *Cal Jog*, or fourth age, in which religion is reduced to nought, it matters not who sees or studies them in these days of wickedness, since by the decrees of the Supreme Being it must be so. At the same time, notwithstanding, I have not observed that the *Baids* are a bit the more explained to the two lower classes among the Hindous, the *Bais* and the *Sender*.

"To return from this digression.—Possessed, now, of these sacred manuscripts, which I procured for the sole purpose of communicating to those who would benefit from their perusal, I soon after sent them to sir William Jones, the only European then in India, I believe, who could read and expound any part of them. From that learned gentleman, whose knowledge and merits are far above my praise, we may expect to learn in the future memoirs of the Asiatic Society what are his opinions relative to them, the surmises in India, and even among the Brehmans, about the authenticity, or at least the merits, of one of the four *Baids*, called the *Atterban*, and in all likelihood some extracts and translations from each: and on that account, I shall beg leave to refer you for any further information on these books to one who is so competent to give the public the fullest and the truest.

"The *Baids* are now in London, and accompany this address: the purport of which is to request of you, Sir, as one of the trustees of the British Museum, to receive and lodge them in that valuable and noble repository, as a small token and tribute of respect and admiration, from one who, though not born a natural subject, yet having spent the best part of his life in the service of this country, is really unacquainted with any other."

VEDENSKOI, a town of Russia, in the government of Archangel, situate on the Vokscha, 200 miles E.S.E. of Archangel. Lon. 46. 44 E. Lat. 58. 45 N.

VEDETTE, in war, a centinel on horseback, with his horse's head towards the place whence any danger is to be feared, and his carabine advanced, with the butt-end against his right thigh. When the enemy has encamped, there are vedettes posted at all the avenues, and on all the rising grounds, to watch for its security.

To VEER. *v. n.* (*virer*, French.) To turn about (*Roscommon*).

To VEER. *v. a.* 1. To let out (*Ben Jonson*). 2. To turn; to change (*Brown*).

To VEER and HAUL, to pull a rope tight, by drawing it in and slackening it alternately, till the body to which it is applied acquires an additional motion, like the increased vibrations of a pendulum, so that the rope is straitened to a greater tension with more facility and dispatch. This method is particularly used in hauling the bowlines. The wind is said to veer and haul when it alters its direction, and becomes more or less fair. Thus it is said to veer aft and to haul forward.

VEER, Ter-Veer, anciently Camp-Veer, a town of Zealand in the United Provinces, standing at the mouth of the East Schelde, about four miles from Middleburgh, and eight from Flushing. Veer, in Dutch, signifies a passage or ferry over an arm of the sea or a river; and as there was once a ferry here over the Schelde to the village of Compen, on the island of North Beveland, the town thereby got the name of Veer, Camp-Veer, and Ter-Veer. It is well fortified, and formerly enjoyed a good trade, especially to Scotland; the natives enjoying particular privileges here. The harbour is very good, and the arsenal the best furnished in the world. Hence the Veres, anciently earls of Oxford, are said to have derived both their origin and name.

VEERING, or WEARING, the operation by which a ship, in changing her course from one board to the other, turns her stern to windward. Hence it is used in opposition to tacking, wherein the head is turned to the wind and the stern to leeward. See SEAMANSHIP.

VEGETABI'LITY. *s.* (from *vegetable.*) Vegetable nature; the quality of growth without sensation (*Brown*).

VEGETABLE. Vegetabile. Vita composita, absque motu voluntario. Regn. Veg. A compound life, without voluntary motion.—Otherwise defined to be—an organical body, which draws in its nourishment by pores or vessels on its outer surface. Or, an organical body destitute of sense and spontaneous motion, adhering to some other body in such a manner as to draw from it nourishment, and having the power of propagating itself by seed.

The primary parts of a vegetable are—1. The root. 2. The herb. 3. The fructification.

VE'GETABLE. *s.* (*vegetabilis*, Latin.) 1. Belonging to a plant (*Prior*). 2. Having the nature of plants (*Milton*).

VEGETABLE KINGDOM. The second of the three great divisions of natural bodies, comprehending all those substances which are organized and have life, but are destitute of sense and spontaneous motion. Linnéus distributes vegetables into three tribes, seven families, or nine nations. In his Artificial System he arranges them in twenty-four classes. He has also made an essay to reduce them into natural orders. See BOTANY.

To VE'GETATE. *v. n.* (*vegeto*, Latin.) To grow as plants; to shoot out; to grow without sensation (*Woodward*).

VEGETATION, in natural history, the development and growth of plants. Upon the different parts of plants and their respective offices, and the various systems which have been devised for their classification, we have already treated under the articles BOTANY and PHYSIOLOGY.

It yet remains for us to notice in a concentrated view a few of the more remarkable facts that relate to vegetation, in the broad and general sense of the term, and the chemical materials which are hereby produced.

Phænomena of Vegetation.

An attentive gardener, observes M. Ramond, in the Annales du Museum, on ascending the high mountains of temperate regions, is immediately struck with the vigour and luxurious appearance of their vegetation. The plants he has seen in the adjacent plains are changed in size, aspect, and form, so that he hardly recognises the most common. Their stems are elevated, their flowers larger, even the leaves of the trees have acquired a size which makes him doubt the identity of the species. The woods are more impenetrable, the turf of the downs closer, and a green more lively, fresh and brilliant colours every thing, from the depths of the valley, up to those heights where the eye can discern nothing but naked rocks and eternal snows.

Thus, endowed with a vigour elsewhere unknown, vegetables in these situations hasten with increased energy through the various periods of their existence. Time, which to them moves slowly in the plains, in the mountains flies. Here, every thing is done rapidly; meteors dart after each other, and the air is in perpetual agitation. From all these controlling causes, acting together in full force, germination, florescence, and fructification take place almost simultaneously. Sometimes, with a wind blowing from the south, with a heavy shower, or with a scorching sun, the face of the meadows, downs, and forests, in a moment changes, and the whole of a particular species seems to vanish; in fact, every fine day is a spring in these situations to some particular assemblage of vegetables, or to some of the inaccessible heights in which they grow.

To this picture, another succeeds. If we examine the mountains and valleys, every place has its peculiar soil, every different elevation its peculiar climate, and each of them its characteristic vegetables. In the plains, these vegetable assemblages occupy vast spaces, the limits of which are too extensive, and indeterminate, to be easily perceived. On the contrary, in the mountains, they are confined to narrow limits, which the eye often takes in at one view. In a gentle rising extended between two dales, in a pile of rocks, or in a cliff, which the traveller ascends in a few moments, he finds the perpetual barriers of those productions, which nature has been pleased to separate.

Among the various causes of these separations, one seems to reign predominant over all others; this is elevation above the level of the sea. In every 100 inches in height, the temperature falls about half a degree of our thermometers. After this degree of cold, which generally puts a stop to all vegetation, an eternal frost prevails on the summit of such Alps, as at the poles, and every 100 yards of vertical elevation corresponds nearly to one degree of the distance at which the mountain is placed from the pole.

By this scale, the various phenomena of different climates in our globe may be easily understood; circumstances may differ, but the general results will be nearly the same. While the increase of cold is accompanied by a diminution of the column of air, it is also affected by the obliquity of the rays of the sun, and the distribution of vegetables, in all alpine countries, depends principally on these two causes.

Thus, in the Swiss Alps, and Pyrenees, trees cease to grow at about 2500 or 2600 yards of actual elevation, as they do about the 70th degree of north latitude; and that circle these gigantic vegetables occupy is divided into several less bounds, which have each their peculiar characteristics. At the foot of the mountain we find the oak; in the middle region, the beech; above these, the fir and yew succeed, which soon give place to the pine (*pinus sylvestris*, L.). Along with this last mentioned tree, in the Swiss Alps, the larch and cembro (*pinus cembra*, L.) also grow wild, which are unknown in the Pyrenees. The cedar of Lebanus would probably thrive as well on these mountains as on those of Asia, had it been fixed there; but such is still the mystery of the original dissemination of vegetables, that nature seems by turns indifferent to the similitude of places, or to the distance between them; sometimes bringing together in the same climate plants of the most distant countries; and sometimes denying this conformity of vegetables to regions exactly alike, both in soil and temperature.

In this zone of trees, the rhododendron ferrugineum, L. a little shrub peculiar to the mountains of Europe solely, is very abundant. It never descends into the plains, and can hardly be cultivated in a garden, demanding its native air, soil, water, nay snows, and even there only occupies particular spots. Nothing is more beautiful when in flower, but nothing is more untractable. In the Pyrenees it first appears at exactly 1600 metres of elevation, stopping as precisely at 2790 yards, and within these limits is so abundant and vigorous, that it would be as difficult to extirpate it there, as it is to cultivate it elsewhere.

The juniper traverses far beyond this circle, up to the elevation of 2900 metres, but this shrub, as it ascends, gradually loses the habit and appearance which distinguish it in our plains: there, it resembles the juniper of Sweden and Lapland, with a low spreading stem, prostrate on the ground, seeking an asylum, as it were, by instinct, on those sides of the rocks exposed to the south or west, against which it spreads out its branches into an espalier, with a regularity which art can seldom attain.

In a more elevated region, we find the rigour of the climate will not permit the existence of any shrub whatever, which the first snows do not entirely cover. Still higher, even this shelter is insufficient, and nothing but a few herbs, with perennial roots actually under the earth, subsist. Nature has almost entirely banished from such places annual plants; where the whole summer is reduced to a few days, nay, sometimes, a few hours; where often a storm of wind, or dripping fog, will destroy the flowers which have scarcely blossomed, and, bringing back winter, terminate the year.

On the contrary, hardly any elevation seems to stop the progress of some perennials, which, on the approach of severe cold, shelter themselves under the double protection of the earth and snow, forming their buds underground, and springing up the first fine day of the succeeding year. Their duration exhausts the chances of all times and seasons, till, sooner or later, they also ripen seed, by which they are multiplied.

Thus the vegetable zone of our alps has in fact no other limits than those of the earth or soil covering them. The Pic du Midi, which I have ascended 26 times, is 3278 yards above the level of the sea, but I never once found the thermometer there rise to the temperate point. Yet, on a nearly bare rock, I have there gathered as many as 48 species of vegetables, excluding cryptogamous plants: of these, one only, which perhaps I may never find again, was annual. At Nieuville, a place 278 yards higher than the Pic du Midi, where the thermometer in summer never rises to more than 8 degrees, M. Ramond asserts, that in five journeys, he has collected 12 different perennials. On the top of Mont Perdu, at an elevation of 3825 yards, even in the bosom of permanent snows, but on rocks the sloping situation of which had cleared them of snow, he has seen six different plants very vigorous. Here, in one of the hottest days of a summer remarkable for its heat, the thermometer only rose to 5·5° above the point of congelation, and it undoubtedly falls in winter to 25 or 30: nor is it certain, that these 6 plants, found in a season which melted more snow than usual, are regularly uncovered every year. Besides, I have seen some of them on the borders of the perpetual snow, with only half of their stems exposed and vegetating, the other half buried in it, and it is probable, that many of them do not see the light ten times in a century, running through the whole course of their vegetation in a few short weeks, and doomed afterwards to sleep through a winter of many years.

Plants subjected to so singular a mode of existence are not among the species which grow in the plains of our temperate regions: they belong exclusively to such as grow on the summits of mountains, or near the poles. Norway, Lapland, and Greenland, furnish plants analogous to those of the Swiss Alps and Pyrenees; but few, or possibly none of them, are seen in Siberia, Kamschatka, or even in the polar regions of America. One would hardly have supposed so great a diversity of vegetable productions in countries so much alike and near each other, nor, on the other hand, so great a conformity as exists among the plants of these countries, and the plants of some alpine regions distant from them 40 degrees.

In fact, we learn from actual observation, that the dissemination of vegetables is not always regulated in parallel distances from the equator; that if a certain number of plants, confined by their constitution to a peculiar climate, are to be found to a certain distance under the same latitudes, many others, on the contrary, have been scattered over different countries in the direction of their meridians. Towards the south, America, Africa, and Asia; towards the north, Europe, Asia, and America, are far from producing the same vegetables under the same parallels; while many plants, growing wild in each of these grand divisions of the globe, brave every obstacle opposed to them by a diversity of climate, and propagate themselves in a geographical direction quite contrary to that which a similar climate would confine them to.

Thus, for example, many of the curious plants of Sardinia, Sicily, and Italy, mount up the Swiss Alps, and then descend again into the lower parts of Germany, without being allured by our fine climate to France. Thus, likewise, the Pyrenees receive from Spain a great number of the plants of Barbary, scattering them over the western provinces of France. The merendera, which grows in the north of Africa, is found in Andalusia, Castile, Arragon; when crossing the Pyrenees it descends as far as the Landes de Bourdeaux. The narcissus bulbocodium, and hyacinthus serotinus, grow wild in the same places, and follow the same route. The anthericum bicolorum of Algiers traverses the same chain of mountains, and arrives in Anjou. The scilla umbellata and crocus nudiflorus have migrated from the Pyrenees even into England. Yet not one of the above-mentioned vegetables have been disseminated laterally, to meet those southern ones which have crossed the Swiss Alps.

But it is in the great valleys of the Pyrenees, extending from north to south, that these vegetable galaxies become most striking and singular. The dianthus superbus runs through the whole valley of Campan and Gavarnie, without ever entering any of the side ones. The verbascum myconi, that beautiful and scarce plant, which does not belong either to the genus in which Linnéus has placed it, or perhaps to any natural order yet defined, and which has so exotic an appearance, that it distinguishes itself like the king-fisher, among our indigenous birds, invariably keeps to the same direction. Nothing is more abundant in all the great valleys of the Pyrenees, in every soil and exposition: yet the very same soil and exposition never attract it to any of the collateral ones. We could cite a multitude of similar examples, but it is sufficient at present to mention one more, the box tree. This shrub, so very robust, is affected by elevation like the most delicate ones. At the base of the Pyrenees, both on the French and Spanish side, it covers every hill: thence it enters the great valleys, running from the north-east towards the south, but never quits them; in vain do the numerous branches of these valleys offer it an asylum; passing their openings, it keeps to its first direction, stopping on the crest of the chain at about 2000 metres above the level of the sea, and appearing again on the other side at a similar elevation, and in a similar direction, from which it never deviates.

Thus it is, that in high mountainous countries we discover the strongest traces of the original design of nature; there, each order of vegetables is confined within narrower bounds; there, local influence more powerfully resists every other. Nevertheless, the lapse of ages, and especially the presence of man, has here introduced many modifications; for, in traversing the immense deserts of these high mountains, among the rare plants which form their herbage, some few of the commonest here and there occur. If the verdure takes a deeper tint than usual, contrasted with the gayer colour of the alpine turf, the ruins of a hut, or a rock blackened by smoke, explain the mystery. Around these asylums of man, we find naturalized the common mallow, nettle, chickweed, common dock. A shepherd had possibly sojourned here some weeks, and in driving his flocks hither had also attracted, without knowing it, the birds, the insects, the seeds of the plants of his lowland cot. He may possibly never return, but these wild spots have received in an instant the indelible impression of his footsteps; so much weight has a being of his importance in the scale of nature.

In other places he has signalized his presence by destruction. Before he approached the mountains, the immense forests which covered their bases have fallen under his axe, for woods are not the abodes of man; he avoids the circuitous paths of so vast a labyrinth, suspecting danger under their shades; he there mourns the absent sun, an object which every day renovates his delight; and hence it is seldom that he penetrates a forest, without fire and sword in hand.

Accordingly the seeds of woodland plants become dormant in a soil now dried by the sun and wind, and no longer suitable to their germinating. Other vegetables take their places, the climate itself changing; for the temperature rises, the rains are less frequent, but more copious, the winds more inconstant and impetuous, deep gullies are formed in the sides of the acclivities by torrents, and rocks are deprived of the earth which covered them, and, at the same time, of the plants which ornamented them, by falls of immense loads of melting snow; thus the face of the globe, where man inhabits, is more changed in one century, than in twenty where he is absent.

After all, in Alpine countries, the different soils, and their productions, retain most of their aboriginal character: there, the primitive distribution of vegetables has been least disturbed; their localities can be easily traced, the influence of the air is most perceptible; there, the contiguity of objects exhibiting more forcibly their similitudes and dissimilitudes, the eye of the observer takes in, at one glance, every trait which is interesting; and if it be necessary for the geologist to visit these grand chains of mountains, to study the structure of the earth and those catastrophes which have imprinted its present form, it is still more so for the horticulturist, who wishes to penetrate the mysteries of the primary dissemination of vegetables and their subsequent propagation, hoping thence to derive hints for their successful cultivation and improvement, in the paradise surrounding his dwelling.

Are the variations we thus meet with, the adaptation of the plant to the climate, its selection of climate, and its change of appearance and power, the result of a vegetable instinct, or of mere mechanical forces? this is a question which has long excited and still continues to excite the attention of physiologists. Whichsoever be the ruling principle, it must equally operate in every part and discover itself in every organ. Let us then select a single organ as the subject of our enquiry, and follow it up from its development; and let that organ, though any other would answer as well, be the tendril. The tendril is the petiole of a plant without the leafy expansion, possessing a vascular structure of the same nature as that of herbaceous stems. The sap of the tendril not being wasted in the formation of leaves, the tendril itself necessarily grows longer than the petiole, and on this account is too slender and feeble to maintain a straight direction. Hence arises its twisted shape. It is conjectured by Wildenow, that the diminished force of the current of air has some influence upon their course: since plants that support themselves by tendrils, send out, when distant from a wall, tree, or shrub, all their tendrils towards that side on which the plant is to attach itself. This idea, however, is far from satisfactory, and by no means explains the direction of the curvatures of the tendrils of different plants. Other physiologists have consequently taken very high ground; and have affirmed that the motions of the tendrils of plants, and the efforts they apparently make to approach and attach themselves to contiguous objects, originate in some degree, not merely of instinct, but of sensation and perception; but this is a more dangerous hypothesis than the preceding, and altogether unsupported by fact or analogy.

Mr. Knight, sensible of the mischievous consequences to which such an opinion seems unavoidably to lead, contends, on the contrary, that all the movements and actions of the vegetable world are as much the result of the two antagonist powers of gravitation and a centrifugal force, as those of unorganised matter. We can, however, as little yield to this conception, as to either of the two preceding, believing that instinct exists wherever vitality of any kind exists: yet as the hypothesis is plausibly and ingeniously supported, and forms the latest that has been offered upon the subject, we shall present our readers with his own words, which are thus given in a letter to the president of the Royal Society of the date of 1812. "I was induced, during last summer, to employ a considerable portion of time to watch the motions of the tendrils of different species of plants; and I have now the pleasure to address to you an account of the observations I was enabled to make.

"The plants selected were the Virginia creeper (the ampelopsis quinquefolia of Michaux), the ivy, and the common vine and pea.

"A plant of the ampelopsis, which grew in a garden pot, was removed to a forcing-house in the end of May, and a single shoot from it was made to grow perpendicularly upwards, by being supported in that position by a very slender bar of wood, to which it was bound. The plant was placed in the middle of the house, and was fully exposed to the sun; and every object around it was removed far beyond the reach of its tendrils. Thus circumstanced, its tendrils, as soon as they were nearly full grown, all pointed towards the north, or back wall, which was distant about eight feet: but not meeting with any thing in that direction, to which they could attach themselves, they declined gradually towards the ground, and ultimately attached themselves to the stem beneath, and the slender bar of wood.

"A plant of the same species was placed at the east end of the house, near the glass, and was in some measure skreened from the perpendicular light; when its tendrils pointed towards the west, or centre of the house, as those under the preceding circumstances had pointed towards the north and back wall. This plant was removed to the west end of the house, and exposed to the evening sun, being skreened, as in the preceding case, from the perpendicular light; and its tendrils, within a few hours, changed their direction, and again pointed to the centre of the house, which was partially covered with vines. This plant was then removed to the centre of the house, and fully exposed to the perpendicular light, and to the sun; and a piece of dark-coloured paper was placed upon one side of it, just within the reach of its tendrils; and to this substance they soon appeared to be strongly attracted. The paper was then placed upon the opposite side, under similar circumstances, and there it was soon followed by the tendrils. It was then removed, and a piece of plate glass was substituted; but to this substance the tendrils did not indicate any disposition to approach. The position of the glass was then changed, and care was taken to adjust its surface to the varying position of the sun, so that the light reflected might continue to strike the tendrils; which then receded from the glass, and appeared to be strongly repulsed by it.

"The tendrils of the ampelopsis very closely resemble those of the vine, in their internal organization, and in originating from the alburnous substance of the plant; and in being, under certain circumstances, convertible into fruit stalks. The claws or claspers of the ivy, to experiments upon which I shall now proceed, appear to be cortical protrusions only; but to be capable (I have reason to believe) of becoming perfect roots, under favourable circumstances. Experiments in every respect very nearly similar to the preceding were made upon this plant; but I found it necessary to place the different substances, to which I proposed that the claws should attempt to attach themselves, almost in contact with the stems of the plants. I observed that the claws of this plant evaded the light, just as the tendrils of the ampelopsis had done; and that they sprang only from such parts of the stems as were fully, or partially, shaded.

"A seedling plant of the peach tree, and one of the ampelopsis and ivy, were placed nearly in the centre of the house, and under similar circumstances; except that supports, formed of very slender bars of wood, about four inches high, were applied to the ampelopsis and ivy. The peach tree continued to grow nearly perpendicularly, with a slight inclination towards the front and south side of the house, whilst the stems of the ampelopsis and ivy, as soon as they exceeded the height of their supports, inclined many points from the perpendicular line, in the opposite direction.

"It appears, therefore, that not only the tendrils and claws of these creeping dependent plants, but that their stems also, are made to recede from light, and to press against the opake bodies, which nature intended to support and protect them.

"M. Decandole, I believe, first observed that the succulent shoots of trees and herbaceous plants, which do not depend upon others for support, are bent towards the point from which they receive light, by the contraction of the cellular substance of their bark, upon that side; and I believe his opinion to be perfectly well founded. The operation of light upon the tendrils and stems of the ampelopsis and ivy appears to produce diametrically opposite effects, and to occasion an extension of the cellular bark, wherever that is exposed to its influence; and this circumstance affords, I think, a satisfactory explanation why these plants appear to seek and approach contiguous opake objects, just as they would do, if they were conscious of their own feebleness, and of power in the objects, to which they approach, to afford them support and protection.

"The tendril of the vine, as I have already stated, is internally similar to that of the ampelopsis, though its external form, and mode of attaching itself, by twining round any slender body, are very different. Some young plants of this species, which had been raised in pots in the preceding year, and had been headed down to a single bud, were placed in a forcing-house, with the plants I have already mentioned; and the shoots from these were bound to slender bars of wood, and trained perpendicularly upwards. Their tendrils, like those of the ampelopsis, when first emitted, pointed upwards; but they gradually formed an increasing angle with the stems, and ultimately pointed perpendicularly downwards; no object having presented itself to which they could attach themselves.

"Other plants of the vine, under similar circumstances, were trained horizontally; when their tendrils gradually descended beneath their stems, with which they ultimately stood very nearly at right angles.

"A third set of plants were trained almost perpendicularly downwards, but with an inclination of a few degrees towards the north; and the tendrils of these permanently retained very nearly their first position, relatively to their stems; whence it appears that these organs, like the tendrils of the ampelopsis, and the claws of the ivy, are to a great extent under the control of light.

"A few other plants of the same species were trained in each of the preceding methods; but proper objects were placed, in different situations near them, with which their tendrils might come into contact; and I was by these means afforded an opportunity of observing with accuracy the difference between the motions of these, and those of the ampelopsis, under similar circumstances. The latter almost immediately receded from light, by whatever means that was made to operate upon them; and they did not subsequently show any disposition to approach the points from which they once receded. The tendrils of the vine, on the contrary, varied their positions in every period of the day, and after, returned again during the night to the situations they had occupied in the preceding morning; and they did not so immediately, or so regularly, bend towards the shade of contiguous objects. But as the tendrils of this plant, like those of the ampelopsis, spring alternately from each side of the stem, and as one point only in three is without a tendril, and as each tendril separates into two divisions, they do not often fail to come into contact with any object within their reach; and the effects of contact upon the tendril are almost immediately visible. It is made to bend towards the body it touches, and, if that body be slender, to attach itself firmly by twining round it, in obedience to causes which I shall endeavour to point out.

"The tendril of the vine, in its internal organization, is apparently similar to the young succulent shoot, and leaf-stalk, of the same plant; and it is as abundantly provided with vessels, or passages, for the sap; and I have proved that it is alike capable of feeding a succulent shoot, or a leaf, when grafted upon it. It appears therefore, I conceive, not improbable, that a considerable quantity of the moving fluid of the plant passes through its tendrils; and that there is a close connexion between its vascular structure and its motions.

"I have proved in the Philosophical Transactions of 1806, that centrifugal force, by operating upon the elongating plumules of germinating seeds, occasions an increased growth and extension upon the external sides of the young stems, and that gravitation produces correspondent effects; probably, by occasioning the presence of a larger portion of the fluid organizable matter of the plant upon the one side than upon the other. The external pressure of any body upon one side of a tendril will probably drive this fluid from one side of the tendril, which will consequently contract, to the opposite side, which will expand; and the tendril will thence be compelled to bend round a slender bar of wood or metal, just as the stems of germinating seeds are made to bend upwards, and to raise the cotyledons out of the ground; and in support of this conclusion I shall observe, that the sides of the tendrils, where in contact with the substance they embraced, were compressed and flattened.

"The actions of the tendrils of the pea were so perfectly similar to those of the vine, when they came into contact with any body, that I need not trouble you with the observations I made upon that plant. An increased extension of the cellular substance of the bark upon one side of the tendrils, and a correspondent contraction upon the opposite side, occasioned by the operation of light; or the partial pressure of a body in contact, appeared, in every case which has come under my observation, the obvious cause of the motions of tendrils; and therefore, in conformity with the conclusions I drew in my last memoir, respecting the growth of roots, I shall venture to infer, that they are the result of pure necessity only, uninfluenced by any degrees of sensation, or intellectual powers."

Chemical Productions of Vegetation.

The products hitherto found in the vegetable kingdom, so far as they have been examined with any degree of accuracy, may be reduced under four heads. I Substances soluble in water, at least in some state or other, and which, in general, are solid, and not remarkably combustible. II. Substances either fluid, or which melt when heated, and burn like oils. These are all insoluble in water, but in general dissolve in alkohol. III. Substances neither soluble in water, álkohol or ether, and which have a fibrous or woody texture. IV. Substances which belong to the mineral kingdom, and occur only in small quantities in vegetables, and may therefore be considered as extraneous. They are thus arranged by Dr. Thomson.

I. *Various*.

1. Acids.
2. Sugar.
3. Sarcocol.
4. Asparagin.
5. Gum.
6. Jelly.
7. Ulmin.
8. Inulin.
9. Starch.
10. Indigo.
11. Gluten.
12. Albumen.
13. Fibrin.
14. Gelatin.
15. Bitter principle.
16. Extractive, or extract.
17. Tannin.
18. Narcotic principle.

II. *Oleoform.*

1. Fixed oil.
2. Wax.
3. Volatile oil.
4. Camphor.
5. Birdlime.
6. Resins.
7. Guaiacum.
8. Balsams.
9. Gum-resins.
10. Caoutchouc.

III. *Fibrous.*

1. Cotton.
2. Suber.
3. Wood.

IV. *Extraneous.*

1. Alkalies.
2. Earths.
3. Metals.

We shall confine our observations to the principal of these products: for the rest, the reader may turn to the separate articles under the respective names.

The most important of the whole, if we have regard to its quantity, in which it greatly exceeds all the rest put together, is vegetable *fibre* or *wood*. This is to plants what bone, muscle, and cartilage, are to animals: to this they are entirely indebted for their stability, and the resistance they are able to oppose to external violence. It constitutes the greater part of all woods and barks; of the green epidermis of herbaceous plants; of the net-work of leaves; and of the fine downy fibres in which the seeds of cotton and various other vegetables are imbedded. It consists of carbon, oxygen, hydrogen, and a little azot. By dry distillation it yields hydro-carbonous gass, carbonic acid, empyreumatic, acetous, or pyro-ligneous acid, with a little ammonia, and a little volatile oil. A large proportion of charcoal remains behind in the retort, still exhibiting, in a very perfect manner, the texture of the wood. There is no animal substance at all analogous to vegetable fibre.

The next most copious substance is, perhaps, *fecula* or *starch*. It is contained in all seeds, and more sparingly in most of the bulbous, tuberous, and other fleshy roots. It is not ascertained whether azot enters into its composition: ammonia, certainly, is not afforded by dry distillation. It appears to be absolutely peculiar to the vegetable kingdom.

Extract, or *extractive*, is another of the peculiar vegetable principles found in abundance. But though nothing analogous to it exists in the animal kingdom, yet it affords ammonia both by dry distillation, and by the action of quick-lime: in the former case, indeed, the ammonia is marked by the contemporaneous production of empyreumatic acid, but it may readily be set at liberty by means of the fixed alkalies.

Another important principle is *tannin*: it is contained in certain barks, woods, and leaves, and affords by dry distillation an empyreumatic acid, but no ammonia. It may be considered as peculiar to vegetables, although it appears, from Mr. Hatchett's experiments, that a substance very similar to tannin may be procured by the action of nitric acid on various kinds of animal matter previously charred.

Gum-mucilage is another of the peculiar vegetable principles, to which nothing analogous has hitherto been discovered in the animal kingdom, unless it be the poisonous matter of venomous snakes, which, as analyzed by Fontana, appears to have many of the characters of vegetable gum. It resides chiefly in the barks of trees, and in a few of the bulbous roots. By dry distillation it affords an empyreumatic acid, from which, however, quick-lime sets at liberty a quantity of ammonia, thus showing that azot enters into the composition of this substance.

Volatile oil is also peculiar to the vegetable kingdom. It occurs in the bark, the wood, and the covering of several seeds. It appears to consist entirely of oxygen, hydrogen, and carbon; and does not afford any ammonia by distillation.

Camphor, *resin*, and *balsam*, also rank among the peculiar vegetable principles, and appear to consist of oxygen, hydrogen, and carbon, without any azot. A few of the aromatic animal products, indeed, such as musk, civet, and ambergris, appear to contain a portion of resin, which, however, differs from vegetable resin, in affording ammonia by digestion with fixed alkali, and therefore contains azot.

Gum-resin, *gluten*, and *caoutchouc*, are three peculiar vegetable principles, into the composition of which, a considerable quantity of azot enters, as they afford ammonia and oil by dry distillation, but no acid.

The acids peculiar to vegetables are the tartaric, citric, and gallic, the malic, oxalic, acetic, and prussic. Of these, however, the four latter, though not originating in animal organization, may yet be produced, by the action of different reagents, on several animal products.

The substances that follow are common to both vegetable and animal matter:

Sugar.—This is contained largely in some of the grass stems, in the nectaries of all blossoms, in the pulp of certain fruits, and in many of the fleshy spindle-shaped roots: also in the milk of animals, and in human urine in a peculiar diseased state. It is much more abundant in the vegetable than in the animal kingdom, and by destructive distillation, affords a large proportion of empyreumatic acid, but no ammonia.

Fixed oil.—This is contained in most seeds, and in the pulpy fruit of the olive, the cornel, and perhaps of a few other plants. In animals, it resides in the liver, in the cellular membrane, and in milk. It appears to consist of oxygen, hydrogen, and carbon, with little or no azot, and affords an acid by destructive distillation.

Albumen, *fibrin*, *and gelatin.*—These substances are of rare occurrence in the vegetable kingdom, but they constitute almost the whole of the soft parts of animals. They are composed for the most part of oxygen, hydrogen, carbon, and azot, and afford by distillation ammonia and oil, but no acid.

Benzoic and phosphoric acids.—Of these, the former is found in the vegetable balsams, and in the urine of the horse, and of a few other quadrupeds: the latter, combined with lime, is very abundant in animals, constituting the principal portion of the bones, and other hard parts: but it is of comparatively rare occurrence in vegetables, in which it is found in combination with lime, or potash.

All the above vegetable principles may be ultimately resolved into the following fifteen substances: viz. oxygen, carbon, hydrogen, azot, sulphur, phosphoric and muriatic acids, oxyds of iron, and manganese, potash, and soda, lime, magnesia, silex, and alumine; and of these, the first four constitute by far the largest mass of vegetable matter.

As all animal matter is prepared by the process of digestion from vegetables, it is obvious that each of these great classes of substances must exhibit, in its ultimate analysis, the same simple substances. It is moreover evident from the preceding enumeration, that not only the elements, but many of the secondary principles derived from them, are common both to vegetables and animals; and, therefore, that, strictly speaking, there can be no essential characters by which the chemist can pronounce decisively concerning any unknown substance presented to his examination, that it belongs to the animal or vegetable kingdom. The old chemists, indeed, relied with confidence on the phenomena afforded by destructive distillation: if an ammoniacal liquor were produced, accompanied by the odour of burnt feathers, the substance yielding it was immediately presumed to be of animal origin; while if an acid liquor was produced, accompanied by the odour of wood smoke, the unknown substance was considered as belonging to the vegetable kingdom; and this, though by no means an infallible criterion, must still be considered as the best that can be adopted.

VE'GETATIVE. *s.* (*vegetatif*, French.) 1. Having the quality of growing without life (*Raleigh*). 2. Having the power to produce growth in plants (*Broome*).

VE'GETATIVENESS. *s.* (from *vegetative.*) The quality of producing growth.

VEGE'TE. *a.* (*vegetus*, Lat.) Vigorous; active: sprightly (*South*).

VE'GETIVE. *a.* (from *vegeto*, Lat.) Vegetable; having the nature of plants (*Tusser*).

Ve'getive. *s.* A vegetable (*Dryden*).

VEGLIA, an island in the gulf of Venice, on the coast of Dalmatia. It is 90 miles in circuit, rocky, and badly cultivated, but produces wine and silk, and has small horses in high esteem. The town of the same name has a good harbour, a strong citadel, and is the see of a bishop. Lon. 14. 56 E. Lat. 45. 22 N.

VEGLIANA, a town of Piedmont, seated on an eminence, near the river Doria, 12 miles N.W. of Turin.

VEH, a town of Hindustan, in Moultan, seated at the junction of the Setledge with the Indus, 63 miles S.S.W. of Moultan. Lon. 70. 5 E. Lat. 29. 8 N.

VE'HEMENCE. Ve'hemency. *s.* (*vehementia*, Latin.) 1. Violence; force (*Milton*). 2. Ardour; mental violence; fervour (*Add.*).

VE'HEMENT. *a.* (*vehement*, French; *vehemens*, Latin.) 1. Violent; forcible (*Grew*). 2 Ardent; eager; fervent (*Milton*).

VE'HEMENTLY. *ad.* (from *vehement.*) 1. Forcibly. 2. Pathetically; urgently (*Tillotson*).

VE'HICLE. *s.* (*vehiculum*, Lat.) 1. That in which any thing is carried (*Addison*). 2. That part of a medicine which serves to make the principal ingredient portable (*Brown*). 4. That by means of which any thing is conveyed (*L'Estrange*).

VEII (anc. geog.), a city of Etruria, the long and powerful rival of Rome; distant about 100 stadia, or twelve miles, to the north-west; situated on a high and steep rock. Taken after a siege of ten years by Camillus, six years before the taking of Rome by the Gauls: and thither the Romans, after the burning of their city, had thoughts of removing; but were dissuaded from it by Camillus (*Livy*). It remained standing after the Punic war; and a colony was there settled, and its territory assigned to the soldiers. But after that it declined so gradually, as not to leave a single trace standing. Famous for the slaughter of the 300 Fabii on the Cremera (*Ovid*). The spot on which it stood lies near Isola, in St. Peter's patrimony (*Holstenius*).

To VEIL. *v. n.* (*velo*, Latin. See Vail.) 1. To cover with a veil, or any thing which conceals the face (*Boyle*). 2. To cover; to invest (*Milton*). 3. To hide; to conceal (*Pope*).

Veil. *s.* (*velum*, Latin.) 1. A cover to conceal the face (*Waller*). 2. A cover; a disguise (*Dryden*).

Veil, a piece of stuff, serving to cover or hide any thing. In the Romish churches, in time of Lent, they have veils or curtains over the altar, crucifix, images of saints, &c. A veil of crape is wore on the head by nuns, as a badge of their profession: the novices wear white veils, but those who have made the vows black ones. See the article Nun.

Veil, in botany. See Calyptre.

Veil (Charles Marie), the son of a Jew, of Metz, in Lorrain; who, on his conversion to Christianity, became a canon regular of St. Augustin, and prior of St. Ambrose, at Melun; but turning protestant, he fled to England, where he preached among the anabaptists in 1685: he wrote Commentaries in Latin upon several books of the Old and New Testaments.

Veil (Lewis de Compiegne de), brother to the preceding, also a converted Jew, and who published many learned pieces, particularly one entitled Catechismus Judæorum in disputatione et dialogo magistri et discipuli, scriptus à R. Abrahamo Jagel, monte Silicis oriundo, Hebrew and Latin, 1679. He, like his brother, became a protestant. They both died about the end of the 17th century.

VEINS. (*vena*, from *venio*, to come, because the blood comes through it.) In anatomy, long membranous canals, which continually become wider, do not pulsate, and return the blood from the arteries to the heart. All veins originate from the extremities of arteries only, by anastomosis, and terminate in the auricles of the heart; *e. g.* the vena cava in the right, and the pulmonary veins in the left auricle. They are composed, like arteries, of three tunics or coats, which are much more slender than in the arteries, and are supplied with semilunar membranes or folds called valves. Their use is to return the blood to the heart.

The blood is returned from every part of the body into the right auricle: the vena cava superior receives it from the head, neck, thorax, and superior extremities; the vena cava inferior, from the abdomen and inferior extremities; and the coronary vein receives it from the coronary arteries of the heart.

The vena cava superior.—This vein terminates in the superior part of the right auricle, into which it evacuates the blood, from the right and left subclavian veins, and the vena azygos. The right and left subclavian veins receive the blood from the head and upper extrémities, in the following manner. The veins of the fingers, called digitals, receive their blood from the digital arteries, and empty it into,

1. The cephalic of the thumb, which runs on the back of the hand along the thumb, and evacuates itself into the external radial.

2. The salvatella, which runs along the little finger, unites with the former, and empties its blood into the internal and external cubital veins. At the bend of the fore-arm are three veins, called the great cephalic, the basilic, and the median.

The great cephalic runs along the superior part of the fore-arm, and receives the blood from the external radial.

The basilic ascends on the under side, and receives the blood from the external and internal cubital veins, and some branches which accompany the brachial artery, called venæ satellitum.

The median is situated in the middle of the fore-arm, and arises from the union of several branches. These three veins all unite above the bend of the arm, and form

The brachial vein, which receives all their blood, and is continued into the axilla, where it is called

The axillary vein.—This receives also the blood from the scapula, and superior and inferior parts of the chest, by the superior and inferior thoracic vein, the vena muscularis, and the scapularis.

The axillary vein then passes under the clavicle, where it is called the subclavian, which unites with the external and internal jugular veins, and the vertebral vein, which brings the blood from the vertebral sinuses; it receives also the blood from the mediastinal, pericardiac, diaphragmatic, thymic, internal mammary and laryngeal veins, and then unites with its fellow, to form the vena cava superior, or as it is sometimes called, vena cava descendens.

The blood from the external and internal parts of the head and face is returned in the following manner into the external and internal jugulars, which terminate in the subclavians.

The frontal, angular, temporal, auricular, sublingual, and occipital veins receive the blood from the parts after which they are named; these all converge to each side of the neck, and form a trunk, called the external jugular vein.

The blood from the brain, cerebellum, medulla oblongata, and membranes of these parts, is received into the lateral sinuses, or veins of the dura mater, one of which empties its blood through the foramen lacerum in basi cranii into the internal jugular, which descends in the neck by the carotid arteries, receives the blood from the thyroideal and internal maxillary veins, and empties itself into the subclavians within the thorax.

The vena azygos receives the blood from the bronchial, superior, æsophageal, vertebral and intercostal veins, and empties it into the superior cava.

Vena cava inferior.—The vena cava inferior is the trunk of all the abdominal veins and those of the lower extremities, from which parts the blood is returned in the following manner. The veins of the toes, called the digital veins, receive the blood from the digital arteries, and form on the back of the foot three branches, one on the great toe, called the cephalic, another, which runs along the little toe, called the vena saphena, and on the back of the foot, vena dorsalis pedis; and on the sole of the foot they evacuate themselves into the plantar veins.

The three veins on the upper part of the foot coming together above the ankle, form the anterior tibial; and the plantar veins, with a branch from the calf of the leg, called the sural vein, form the posterior tibial; a branch also ascends in the direction of the fibular called the peroneal vein. These three branches unite before the ham into one branch, the subpopliteal vein, which ascends through the ham, carrying all the blood from the foot: it then proceeds upon the anterior part of the thigh, where it is termed the crural or femoral vein, receives several muscular branches, and passes under Poupart's ligament into the cavity of the pelvis, where it is called the external iliac.

The arteries which are distributed about the pelvis evacuate their blood into the external hæmorrhoidal veins, the hypogastric veins, the internal pudendal, the vena magna ipsius penis, and obturatory veins, all of which unite in the pelvis, and form the internal iliac vein.

The external iliac vein receives the blood from the external pudendal veins, and then unites with the internal iliac at the last vertebra of the loins, and form the vena cava inferior or ascendens, which ascends on the right side of the spine, receiving the blood from the sacral, lumbar, right spermatic veins, and the vena cava hepatica; and having arrived at the diaphragm, it passes through the right foramen, and enters the right auricle of the heart, into which it evacuates all the blood from the abdominal viscera and lower extremities.

Vena cava hepatica.—This vein ramifies in the substance of the liver, and brings the blood into the vena cava inferior from the branches of the vena portæ, a great vein which carries the blood from the abdominal viscera into the substance of the liver. The trunk of this vein, about the fissure of the liver, in which it is situated, is divided into the hepatic and abdominal portions. The abdominal portion is composed of the splenic, meseraic, and internal hæmorrhoidal veins. These three venous branches carry all the blood from the stomach, spleen, pancreas, omentum, mesentery, gall-bladder, and the small and large intestines, into the sinus of the vena portæ. The hepatic portion of the vena portæ enters the substance of the liver, divides into innumerable ramifications, which secrete the bile, and the superfluous blood passes into corresponding branches of the venæ cavæ hepaticæ.

The action of the veins.—Veins do not pulsate; the blood which they receive from the arteries flows through them very slowly, and is conveyed to the right auricle of the heart by the contractility of their coats, the pressure of the blood from the arteries, called the *vis a tergo*, the contraction of the muscles, and respiration; and it is prevented from going backwards in the vein by the valves, of which there are a great number.

Vein, among miners, is that space which is bounded with woughs, and contains ore, spar, canck, clay, chirt, croil, brownhen, pitcher-chirt, cur, which the philosophers call the mother of metals, and sometimes soil of all colours. When it bears ore, it is called a quick vein; when no ore, a dead vein. See Mineralogy.

Vein signifies farther, 1. Tendency or turn of the mind or genius (*Dryden*). 2. Favourable moment (*Wotton*). 3. Humour;

temper (*Bacon*). 4. Continued disposition (*Temple*). 5. Current; continued production (*Swift*). 6. Strain; quality (*Old.*). 7. Streak; variegation: as, the *veins* of the marble.

VE'INED. VE'INY. *a.* (*veineux*, French, from *vein.*) 1. Full of veins. 2. Streaked; variegated (*Thomson*).

VEJUCA DU GUACO. A plant which has the power of curing and preventing the bite of venoomus serpents, and is probably the ophiorhiza mungos of Linnéus. The following account is given of it by Don Pedro d'Orbies y Vargas. "The abundance of venomous serpents found in the warm districts has rendered it necessary for the unfortunate Indians and negroes, who traverse the woods almost always barefooted, to search out the most efficacious remedies for the disagreeable effects produced by the bite of these animals. Of the remedies hitherto discovered, none is equal to the juice of a plant of the creeping kind, called vejuco du guaco, for it not only cures the maladies arising from the bite of serpents, but preserves from their effects those who have drunk of it before they are bitten; so that the Negroes and Indians acquainted with this plant lay hold with their naked hands of the most venomous serpents, without sustaining any injury from them. This knowledge, of which they formerly made a great mystery, gave them much importance in the country, and there is no doubt that they gained a great deal of money, both from those who were bitten by serpents, and those who were desirous, through curiosity, to see them handle these dangerous animals.

"Being born in the kingdom of Santa-Fé, belonging to South America, I had often heard the inhabitants boasting of the great ability of these negroes, whom my countrymen call empirics. But as in the capital, where I was educated, which lies in a cold district, there are no venomous serpents, I had no opportunity of seeing any till the year 1788, when being at Margerita, I heard of a slave who had a great reputation as being invulnerable to serpents, and who belonged to a gentleman of that place. As I was resolved to examine him myself, I begged his master to send for him, with a sufficient provision of serpents, which he readily consented to do. On the 30th of May, of the same year, the negro came to the house where I resided with one of the most venomous serpents of the country, which he had put into a calabash; a kind of vessel employed by these people for the same purposes as bottles are employed in Europe. Having informed him that I was desirous of seeing a specimen of his talents, he replied that he was ready to gratify my curiosity, and taking the serpent from the calabash, handled it with so much confidence and composure, that I imagined he had previously deprived it of its teeth that contained the poison. I therefore caused him to open its mouth, but I saw that it still had its teeth; and was convinced that the negro possessed some secret for soothing it, for it appeared as tame and harmless as the most innocent animal could have been. After a long conversation with the negro, of whom I asked several questions, to which he gave the most pertinent answers, I informed him how much I should be gratified if I could be enabled to handle serpents with the same security; and finding that he was not averse to procure me that satisfaction, I offered him a recompence, with which he seemed satisfied. Next morning he returned with the leaves of the plant in question, which he moistened, and, having bruised them in my presence, made me drink two large spoonfuls of the juice. He then made three incisions between my fingers in each hand, in which he inoculated me with the same juice; he performed a similar operation on each foot, and on each side of my breast. When these operations were finished, he informed me that I might lay hold of the serpent. I made several observations to him in regard to the disagreeable consequences to be apprehended in case I should be bit by the animal; but finding that he seemed confident in his skill, I resolved to take it into my hands without any fear, which I did several times, the animal never making the least attempt to do me any injury. One of the individuals, however, who were in my house, being desirous to run the same risk, was bit by the serpent the second time he took it in his hands; but without any further inconvenience than a slight inflammation in the parts. Two of my domestics, who had been also inoculated, encouraged by this first attempt, went out into the fields and soon brought with them another kind of serpent, equally venomous, without sustaining any hurt from it. In a word, I have caught several since that time without any other preparation than that of having drank a little juice of the vejuco du guaco; and after repeating these trials, either on myself or my domestics, and always with the completest success, I resolved in 1791 to give a memoir on this remarkable antidote in a periodical paper published every week at Santa-Fé. I added a description of the plant, and every thing that appeared to me necessary for rendering public and general this discovery so useful to mankind. An account of all my experiments, and of the persons who were present, will be found in that paper, dated September 30, 1791.

"I shall here only observe, that the tradition current among the Indians and negroes of the vice-royship of Santa-Fé, respecting the manner in which the virtue of this plant was discovered, is as follows:—A bird of the kite kind, described by Catesby under the name of the serpent-hawk, feeds chiefly upon snakes in the hot and temperate regions of that part of America. This bird has a monotonous cry, sometimes very disagreeable by its repetition, which imitates the articulated word guaco, on which account the inhabitants have given it that name; and these people say that when it cries it is to call forth the serpents, over which it exercises a certain kind of authority. They add other extravagant fables; but it is certain that the guaco pursues them wherever it finds them, and that the Indians and negroes, who spend the greater part of their time in the forests and open fields, assert, that to take them with more safety they prepare themselves by eating some leaves of the plant in question. This may be true; they may have discovered the virtue of it, and experienced it with success. In this case, as in many others, the instinct of animals has been of use to us.

"In regard to the plant, its genus has not yet been classed in any book of botany I have ever seen; and for that reason I shall venture to give a description of it, as well as I can, taking advantage of the memoir above mentioned. The root is fibrous, and extends in every direction; the stem is straight, perfectly cylindric when the plant is tender, but when old becomes pentagonal, that is to say, acquires salient angles. The leaves which grow on the stem stand opposite to each other, are shaped like a heart, have a dark green colour, intermixed with violet; are smooth on the lower side, rough on the upper, and somewhat velvety; its corymbiferous flowers are yellow, flosculous, and have four florets on each common calyx. The corol is monopetalous, infundibuliform, with five indentations, and contains five stamins, united by anthers in the form of cylinders, which embrace the style. The style has a stigma deeply divided, and the calyx contains several broad seeds, each with a silky aigrette.

"The plant is vivacious, and is found in the hot and temperate regions of the vice-royship of Santa-Fé; it is, in general, found growing on the borders of rivulets and in shady places, rather than in the open plains. Nature has not produced it in the elevated or cold districts of this continent; and for this reason, no doubt, that its virtue would be useless, as there are no venomous serpents but in the countries where it grows."

VELABRUM, a marshy piece of ground on the side of the Tiber, which Augustus drained, and where he built houses. The place was frequented as a market, where oil, cheese, &c. were exposed to sale. (*Horat.*).

VELARIUS, in antiquity, an officer in the court of the Roman emperors, being a kind of usher, whose post was behind the curtain in the prince's apartment, as that of the chancellor's was at the entry of the balustrade; and that of the ostiarii at the door. The velarii had a superior of the same denomination, who commanded them.

VELASQUES (Don Diego de Silva), an eminent Spanish painter, was born at Seville in 1594, but repaired to Madrid, where his talents became a powerful recommendation of him to the royal family. Philip IV. had a very particular regard for him, and took a delight in seeing him paint; he conferred the dignity of cavalier upon him, and when he died, honoured his memory by an expensive funeral.

VELAY, a late province of France, bounded on the north by Forez, west by Auvergne, south by Gevaudan, and east by Vivarez. It is full of high mountains, covered with snow the greater part of the year, but abounds in cattle. It now forms the department of Upper Loire.

VELDENTZ, a town of France, in the department of Sarre, lately of Germany, in the palatinate of the Rhine, with a castle. The environs produce excellent Moselle wine. It is seated on the Moselle, 19 miles N.E. of Treves.

VELETRI, a town of Italy, in Campagna di Roma. It is the residence of the bishop of Ostia, whose palace is magnificent; and there are large squares adorned with fine fountains. It is seated on an eminence, 18 miles S.E. of Rome.

VELEZ DE GOMARA, a seaport of the kingdom of Fez, with a castle, seated between two high mountains, on the Mediterranean, 120 miles N.N.E. of Fez. Lon. 4. 0 W. Lat. 55. 10 N.

Velez Malaga, a town of Spain, in Granada, seated in a large plain, between two rivers, near the Mediterranean, 13 miles E. by N. of Malaga, and 62 S.W. of Granada.

VELEZIA, in botany, a genus of the class pentandria, order digynia. Corol five-petalled, small; calyx filiform, five-toothed; capsule one-celled; seeds numerous, in a single series. One species; a native of the south of Europe.

VELLA. Cress-rocket. In botany, a genus of the class tetradynamia, order siliculosa. Silicle with the partition twice as large as the valves; ovate outwardly. Two species; one, V. annua, common cress-rocket, a herb indigenous to our own sandy fields: the other, V. pseudo-cytisus, a shrubby plant of Spain.

VELLEIA, in botany, a genus of the class pentandria, order monogynia. Calyx five-leaved, inferior; corol tubular, gaping at top, with a five-cleft border; capsule four-valved, one-celled, many-seeded; seeds imbricate. One species only; an herbaceous stemless plant of Australasia.

VELLE'ITY. *s.* (*velleitas*, from *velle*, Lat.) The lowest degree of desire (*Locke*).

To **VE'LLICATE.** *v. a.* (*vellico*, Lat.) To twitch; to pluck; to act by stimulation.

VE'LLICATION. *s.* (*vellicatio*, Latin.) Twitching; stimulation (*Watts*).

Vellication, in medicine. (from *vellico*, to pluck.) The attempt to pluck something from the bedclothes: a common symptom in the last stages of low fevers. (*Tilmus*).

VELLUM, is a kind of parchment, that is finer, evener, and more white than the common parchment. The word is formed from the French *velin*, of the Latin *vitulinus*, belonging to a calf.

VELOCITY, or Swiftness, or Celerity, in mechanics, is that affection of motion, by which a moving body passes over a certain space in a certain time. It is always proportional to the space moved over in a given time when the velocity is uniform, or always the same during that time.

Velocity is either uniform or variable. Uniform, or equal velocity, is that with which a body passes always over equal spaces in equal times. And it is variable, or unequal, when the spaces passed over in equal times are unequal; in which case it is either accelerated or retarded velocity; and this acceleration, or retardation, may also be equal or unequal, i. e. uniform or variable, &c. See ACCELERATION, MOTION, and DYNAMICS.

Velocity is also either absolute or relative. Absolute velocity is that we have hitherto been considering, in which the velocity of a body is considered simply in itself, or as passing over a certain space in a certain time. But relative or respective velocity is that with which bodies approach to, or recede from one another, whether they both move, or one of them be at rest. Thus, if one body move with the absolute velocity of two feet per second, and another with that of six feet per second; then if they move directly towards each other, the relative velocity with which they approach is that of eight feet per second; but if they move both the same way, so that the latter overtake the former, then the relative velocity with which that overtakes it, is only that of four feet per second, or only half of the former; and consequently it will take double the time of the former before they come in contact together.

Virtual velocity of a point solicited by any force, is the element of the space which it would describe in the direction of the power, when the system is supposed to have undergone an indefinitely small derangement.

Principle of virtual velocities, in mechanics, is much employed by the foreign mathematicians, and is thus enunciated: if any system whatever is solicited by powers in equilibrio, and there be given to this system any small motion, in virtue of which every point describes an indefinitely small space, the sum of the products of each power, multiplied by the space that the point where it is applied would describe, according to the direction of the same power, will be always equal to zero; regarding as positive the small spaces described in the sense of the powers; and as negative, those described in the opposite sense.

This principle is due to Galileo. For its history and demonstration, see Mecanique de la Grange, p. 8. See, also, Fourier's demonstration in 5° Cahiér du Journal de l'Ecole Polytechnique.

VELTHEIMIA, in botany, a genus of the class hexandria, order monogynia. Corol tubular, six-toothed; stamens inserted in the tube; capsule membranaceous, three-winged; the cells one-seeded. Four species, natives of the Cape, one or two with nodding flowers.

VELVET, a rich kind of stuff, all silk, covered on the outside with a close, short, fine, soft shag, the other side being a very strong close tissue. The nap or shag, called also the velveting, of this stuff, is formed of parts of the threads of the warp, which the workman puts on a long narrow-channelled ruler or needle, which he afterwards cuts, by drawing a sharp steel tool along the channel of the needle to the ends of the warp. The principal and best manufactories of velvet are in France and Italy, particularly in Venice, Milan, Florence, Genoa, and Lucca: there are others in Holland, set up by the French refugees; whereof that at Haerlem is the most considerable: but they all come short of the beauty of those in France, and accordingly are sold for ten or fifteen per cent. less. There are even some brought from China; but they are the worst of all.

VE'LVET. *a.* 1. Made of velvet (*Shaks.*). 2. Soft; delicate (*Young*).

To VE'LVET. *v. n.* To paint velvet.

VELUM PENDULUM PALATI. Velum. Velum palatinum. The soft palate. The soft part of the palate, which forms two arches, affixed laterally to the tongue and pharynx.

VENA AZYGOS. Vena sine pari. See AZYGOS VEIN.

VENA MEDINENSIS. See MEDINENSIS VENA.

VENA PORTÆ. (*vena portæ, a portando*, because through it things are carried.) Vena portarum. The great vein, situated at the entrance of the liver, which receives the blood from the abdominal viscera, and carries it into the substance of the liver. It is distinguished into the hepatic and abdominal portion: the former is ramified through the substance of the liver, and carries the blood destined for the formation of bile, which is returned by branches to the trunk of the vena cava; the latter is composed of three branches; viz. the splenic, mesenteric, and internal hæmorrhoidal veins. See VEINS.

VENÆ LACTEÆ. The lacteal absorbents were so called. See LACTEALS.

VENAFRO, a town of Naples, in Terra di Lavoro, with a bishop's see, seated near the Volturno, 27 miles W. of Capua, and 43 N. of Naples. Lon. 14. 19 E. Lat. 43. 32 N.

VE'NAL. *a.* (*venal*, French; *venalis*, Lat.) 1. Mercenary; prostitute (*Pope*). 2. (from *vein.*) Contained in the veins (*Ray*).

VENA'LITY. *s.* (from *venal.*) Mercenariness; prostitution.

VENANT (St.), a town of France, in the department of the Straits of Calais. It can be laid under water at any time, which is its chief defence, and is 27 miles S.E. of Dunkirk, and 22 N.W. of Arras. Lon. 2. 39 E. Lat. 50. 38 N.

VENASQUE, a town of Spain, in Arragon, in a valley of the same name, with a strong castle. It is seated on the Essara, in a country producing good wine, 35 miles east of Balbastro. Lon. 0. 25 E. Lat. 41. 58 N.

VENA'TIC. *a.* (*venaticus*, Latin.) Used in hunting.

VENA'TION. *s.* (*venatio*, Latin.) The act or practice of hunting (*Brown*).

To VEND. *v. a.* (*vendre*, French; *vendo*, Latin.) To sell; to offer to sale (*Boyle*).

VENDEE, a department of France, including part of the late province of Poitou. It is so called from a small river of the same name. Fontenay-le-Compte is the capital.

Vende′e. *s.* (from *vend.*) One to whom any thing is sold (*Ayliffe*).

VE′NDER. *s.* (*vendeur*, French.) A seller (*Graunt*).

VE′NDIBLE. *a.* (*vendibilis*, Latin.) Saleable; marketable (*Carew*).

VE′NDIBLENESS. *s.* (from *vendible.*) The state of being saleable.

VE′NDIBLY. *ad.* In a saleable manner.

VENDITA′TION. *s.* (*venditatio*, from *vendito*, Lat.) Boastful display (*Ben Jonson*).

VENDI′TION. *s.* (*vendition*, French; *venditio*, Lat.) Sale; the act of selling.

VENDOME, a town of France, in the department of Loir and Cher, seated on the river Loir, 30 miles N.E. of Tours, and 95 S.W. of Paris. Lon. 1. 8 E. Lat. 47. 50 N.

To VENE′ER. *v. a.* (among cabinet makers.) To make a kind of marquetry or inlaid work (*Bailey*).

VENEERING, Vaneering, or Fineering, a kind of marquetry, or inlaying, whereby several thin slices or leaves of fine wood, of different kinds, are applied and fastened on a ground of some common wood. There are two kinds of inlaying: the one, which is the more ordinary, goes no farther than the making of compartiments of different woods; the other requires much more art, and represents flowers, birds, and the like figures. The first kind is what we properly call veneering; the latter we have already described under Marquetry. The wood intended for veneering is first sawed out into slices or leaves, about a line thick: in order to saw them, the blocks or planks are placed upright in a kind of vice or sawing press: the description of which may be seen under the article just referred to. These slices are afterwards cut into slips, and fashioned divers ways, according to the design proposed; then the joints being carefully adjusted, and the pieces brought down to their proper thickness, with several planes for the purpose, they are glued down on a ground or block of dry wood, with good strong English glue. The pieces thus joined and glued, the work, if small, is put in a press; if large, it is laid on the bench, covered with a board, and pressed down with poles, or pieces of wood, one end whereof reaches to the ceiling of the room, and the other bears on the boards. When the glue is quite dry, they take it out of the press and finish it; first with little planes, then with divers scrapers, some whereof resemble rasps, which take off dents, &c. left by the planes. When sufficiently scraped, the work is polished with the skin of a sea-dog, wax, and a brush and polisher of shave-grass: which is the last operation.

VE′NEFICE. *s.* (*veneficium*, Lat.) The practice of poisoning.

VENEFI′CIAL. *a.* (from *veneficium*, Lat.) Acting by poison; bewitching (*Brown*).

VENEFI′CIOUSLY. *ad.* (from *venificium*, Lat.) By poison or witchcraft (*Brown*).

VE′NEMOUS. *a.* (from *venin*, Fr.) Poisonous. Commonly *venomous* (*Acts*).

To VE′NENATE. *v. a.* (*veneno*, Lat.) To poison; to infect with poison (*Woodward*).

VENENA′TION. *s.* (from *venenate*). Poison; venom (*Brown*).

VENE′NE. Veneno′se. *a.* (*veneneux*, Fr.) Poisonous; venemous (*Harvey. Ray*).

VE′NERABLE. *a.* (*venerabilis*, Lat.) To be regarded with awe; to be treated with reverence (*Fairfax*).

VE′NERABLY. *ad.* (from *venerable.*) In a manner that excites reverence (*Addison*).

To VE′NERATE. *v. a.* (*venerer*, French; *veneror*, Latin.) To reverence; to treat with veneration; to regard with awe (*Herbert*).

VENERA′TION. *s.* (*veneration*, French; *veneratio*, Latin.) Reverend regard; awful respect (*Addison*).

VENERA′TOR. *s.* (from *venerate.*) Reverencer (*Hale*).

VENE′REAL. *a.* (*venereus*, Latin.) 1. Relating to love (*Addison*). 2. Consisting of copper, called *Venus* by chymists (*Boyle*).

Venereal disease. See Gonorrhea and Siphilis.

VENE′REOUS. *a.* (from *venery.*) Libidinous; lustful (*Derham*).

VENERONI (John), was born at Verdun, and called himself Vigneron; but as he had studied Italian, and was desirous of teaching it in Paris, he Italianised his name. The perspicuity of his principles procured him numerous scholars. He is one of those authors who have greatly contributed to extend the taste for Italian literature; he composed some choice fables, besides his grammar and dictionary of the Italian and French languages; he is also author of Letters of Cardinal Bentivoglio.

VE′NERY. *s.* (*venerie*, from *venir*, Fr.) 1. The sport of hunting (*Howel*). 2. The pleasures of the bed (*Grew*).

Venery (Beasts of). Beasts of forest; so denominated in the forest laws, originally framed for the preservation of vert and venison. They include the hart, hare, hind, boar, and wolf.

VENESE′CTION. *s.* (*vena* and *sectio*, Lat.) Blood-letting; the act of opening a vein; phlebotomy. See Surgery.

VENETI, a people of Italy, in Cisalpine Gaul, near the mouths of the Po, descended from a nation of Paphlagonia, who settled there under Antenor, after the Trojan war. The Venetians, who have been long a powerful and commercial nation, were originally very poor. See Venice.

VENETIAN BOLE. The mineral denominated bole is of various colours, but usually of an obscure isabella yellow, red, reddish, or whitish brown. It is also found in various parts of the earth; but chiefly in Italy, France, Germany, Hungary, Portugal, Armenia, and Lemnos. Among other places, this argillaceous earth is dug in Corinthia, and manufactured at Venice into a red pigment, and hence exported as a pigment to all parts of the world. It is in truth a native red ochre, of a fine bright and not very deep hue, approaching in some degree to the colour of minium or red-lead, is moderately heavy, and of an even and smooth texture, yet very friable, and of a dusty surface; it adheres firmly to the tongue, is very smooth and soft to the touch, easily crumbles to pieces between the fingers, and very much stains the skin in handling. It has a slight astringent taste, effervesces considerably with nitric acid, and in water immediately breaks into a fine powder. Though cheap, it is often adulterated; and occasionally imitated by mixing common red ochre with the colcothar, or caput mortuum, taken out of the aqua fortis pots and washed over. It is used in house painting to imitate mahogany.

VENETIANO (Dominico), a Venetian painter, who introduced the use of oil colours in painting into Italy, the art having been communicated to him alone by John Van Eyck, the inventor. He was treacherously murdered at Florence in 1746 by Andrea del Castagno, to whom he had intrusted the secret.

VENEZUELA, a province of Terra Firma, bounded on the N. by the Caribbean Sea, on the E. by Caraccus, on the S. by New Granada, and on the W. by St. Martha. When the Spaniards landed here in 1499, they observed some huts built upon piles, in an Indian village, in order to raise them above the stagnated water that covered the plain: and this induced them to give it the name of Venezuela, or Little Venice. Near the seacoast are high mountains, the tops of which are barren, but the lower parts in the valley are fertile, producing plenty of corn, rich pastures, sugar, tobacco, and fruits. There are also plantations of cocoa-nuts, which are exceedingly good; and gold is found in the sands of the rivers. This province was bestowed by emperor Charles V. on the Velsers of Augsburg, the most opulent merchants, at that time, in Europe, in consideration of large sums they had advanced to him. They were to hold it as an hereditary fief of the crown of Castile, on condition of conquering the country and establishing a colony within a limited time. Unfortunately, they committed the execution of their plan to some of the soldiers of fortune with which Germany abounded in the 16th century, by whose rapacity and extortion the country was so desolated, that it could hardly afford them subsistence, and the Velsers were obliged to relinquish their property. The Spaniards immediately resumed possession of it; but, notwithstanding its many natural advantages, it is still one of their most languishing and unproductive settlements.

VENEZUELA, the capital of a province of the same name, in Terra Firma, with a bishop's see. It stands on a peninsula, on the E. side of the gulf of Venezuela, 70 miles N.E. of Maracaybo. Lon. 70. 15 W. Lat. 10. 43 N.

VE'NEY. *s.* (*venez*, Fr.) A bout; a turn at fencing (*Shakspeare*).

To VENGE. *v. a.* (*venger*, French.) To avenge; to punish (*Shakspeare*).

VE'NGEABLE. *a.* (from *venge.*) Revengeful; malicious (*Spenser*).

VE'NGEANCE. *s.* (*vengeance*, French.) 1. Punishment; penal retribution; avengement (*King Charles*). 2. It is used in familiar language. *To do with a* vengeance, is *to do with vehemence.*

VE'NGEFUL. *a.* (from *vengeance* and *full.*) Vindictive; revengeful; retributive (*Prior*).

VE'NIABLE. VE'NIAL. *a.* (*veniel*, French; from *venia*, Lat.) 1. Pardonable; excusable (*Roscom.*). 2. Permitted; allowed (*Milton*).

VE'NIALNESS. *s.* (from *venial.*) State of being excusable.

VENICE, a late celebrated republic of Italy, which comprehended the Dogado, Paduano, Vicentino, Veronese, Bresciano, Bergamo, Cremasco, Polesino di Rovigo, Trevisano, Feltrino, Bellunese, Cadorino, and part of Friuli and Istria. The government of the republic, before it was subverted by the French, was aristocratic, for none could have any share in it but the nobles. The doge was elected by a plurality of votes, obtained in a peculiar manner by means of gold and silver balls; and after his election the ducal cap was placed on his head, with great ceremony, on his public entrance into St. Mark's church. He held his dignity for life; and his office was to marry the Adriatic sea, in the name of the republic; to preside in all assemblies of the state; to have an eye over all the members of the magistracy; and to nominate to all the benefices annexed to the church of St. Mark. On the other hand, his power was so limited, that he has been justly defined to be, in habit and state, a king; in authority, a counsellor; in the city, a prisoner; and out of it, a private person. There were five councils: the first was called La Signoria, composed of the doge and six counsellors. The second was Il Consiglio Grande, in which all the nobles, amounting to 2500, had a voice. The third was Il Consiglio dei Pregadi, consisting of about 250 of the nobility. The fourth was Il Consiglio Proprio, which was united to the Signoria; its members consisted of 28 assessors: this council gave audience to the ambassadors. The fifth and last was Il Consiglio die Dieci, composed of ten counsellors, who took notice of all criminal matters; and the doge himself, when accused, was obliged to appear before them: there was no appeal from this council, which was a severe state inquisition. This constitution, however, now no longer exists. In 1797, a tumult having happened at Venice, in which some French soldiers were killed, the French seized the city, and instituted a provisionary democratic government: but, soon after, by the treaty of Campo Formio, the city and territory of Venice, lying to the N. and W. of the river Adige, was ceded to Austria as a duchy, in equivalence for the dominions that house had lost in the Netherlands; and the remainder of the territory was annexed to what the French then styled the Cisalpine republic. In 1805 commenced a short war between Austria and France, and by the treaty of peace at Presburg, the duchy of Venice was given up; and the whole territory of Venice is now a part of the newly erected kingdom of Italy. The Venetian territories on the continent, enumerated above (and which, by way of distinction, are sometimes called the Terra Firma) are described in their respective places. Venice was once one of the most powerful commercial and maritime states in Europe. For this it was indebted, at first, to the monopoly of the commerce of India; the products of that country being conveyed, in the middle ages, up the gulf of Persia, the Euphrates, and the Tigris, as far as Bagdad; thence by land, across the desert, to Palmyra; and thence to the Mediterranean ports: and, afterward, the supplying of the crusaders with provisions and military stores was an additional source of opulence and power. All this declined, however, after the discovery of the Cape of Good Hope by the Portuguese, in 1486; which, in its consequences, has reduced Venice from a state of the highest splendour to comparative insignificance. The Venetians are lively and ingenious, extravagantly fond of amusements, with an uncommon relish for humour. They are in general tall, well made, and of a ruddy brown colour, with dark eyes. The women are of a fine style of countenance, with expressive features, and a skin of a rich carnation: they are of an easy address, and have no aversion to cultivate an acquaintance with strangers who are properly recommended. Whatever degree of licentiousness may prevail among them, jealousy, poison, and the stiletto have been long banished from their gallantry. The common people display some qualities very rarely to be found in that sphere of life, being remarkably sober, obliging to strangers, and gentle in their intercourse with each other.

Venice, a city of Italy, and a long time the capital of a territory of the same name. In the 4th century, when Attila, king of the Huns, ravaged the N. part of Italy, many of the inhabitants abandoned their country, and retired into the islands of the Adriatic sea, now called the gulf of Venice. These islands being near each other, they found means to join them, by driving piles on the sides, and forming the channels into canals, on which they built houses, and thus the superb city of Venice had its beginning. It is the see of a patriarch, and stands on 72 little islands, about five miles from the mainland, in a kind of laguna or lake, separated from the gulf of Venice, by some islands, at a few miles distance. These islands, in a great measure, break the force of the Adriatic storms, before they reach the laguna. The number of the inhabitants is computed at 160,000, and they have a flourishing trade in silk manufactures, bone-lace, and all sorts of glasses and mirrors, which make their principal employments. Most of the houses have a door opening upon a canal, and another into a street; by means of which, and of the bridges, a person may go to almost any part of the city by land, as well as by water. The streets, in general, are narrow; and so are the canals, except the Grand Canal, which is very broad, and has a serpentine course through the middle of the city. There are nearly 500 bridges in Venice; but what pass for such are only single arches thrown over the canals; most of them very paltry. The Rialto consists also of a single arch, but a very noble one, and of marble, built across the grand canal, near the middle, where it is the narrowest: this celebrated arch is 90 feet wide on the level of the canal, and 24 feet high. The beauty of it is impaired by two rows of booths or shops, which divides its upper surface into three narrow streets. The view from the Rialto is equally lively and magnificent; the canal covered by boats and gondolas, and flanked on each side by magnificent palaces, churches, and spires. The only place where a person can walk with ease and safety is in the Piazza di St. Marco; a kind of irregular quadrangle, formed by a number of buildings, all of marble; namely, the ducal palace; the churches of St. Mark and St. Geminiano; and a noble range of buildings, in which are the museum, the public library, the mint, &c. The patriarchal church of St. Mark, one of the richest and most expensive in the world, is crowned by five domes; and the treasury is very rich in jewels and relics. The churches and convents are numerous, in which the most admirable part are the paintings; and indeed Venice, highly renowned for valuable paintings, far surpasses, in this respect, even Rome itself. The ducal palace is an immense building: before the subversion of the republic it contained the apartments of the doge; halls and chambers for the senate, and the different councils and tribunals; and an armory, in which a great number of muskets were kept, ready charged, that the nobles might arm themselves on any sudden insurrection. The arsenal is a fortification of three miles in compass: before it was pillaged by the French, it contained arms for 60,000 foot and 20,000 horse, arranged in an ornamental manner; and 2800 men were daily employed in building ships, casting cannons, making cables, sails, anchors, &c. The handsome structure called Il Fontica di Tedeschi, containing 22 shops and 100 rooms, is that where the German merchants lay their commodities. The bank of Venice is supposed to be the first of the kind in Europe, after the model of which those of Amsterdam and Hamburg were established. In this city a famous carnival is held from Christmas till Ashwednesday; in all which time libertinism reigns through the city, and thousands of foreigners frequent it from all parts of Europe. The chief diversions are ridottos and masquerades; and St. Mark place is the general rendezvous. Venice is included in the province called the Dogado, and is 125 miles N.N.E. of Florence, and 140 E. of Milan. Lon. 12. 23 E. Lat. 45. 27 N.

Venice (Gulf of), a sea, or gulf of the Mediterranean, between Italy and Turkey in Europe. It is the ancient Adriaticum mare, and is still sometimes called the Adriatic sea. There are many islands in it, and many bays or small gulfs on each coast. The grand ceremony of the doge of Venice marrying the Adriatic annually on Ascension Day, by dropping into it a ring from his bucentaur, or state barge, attended by all the nobility and ambassadors in gondolas, was intermitted in 1797, for the first time for several centuries. See Hinchley's History of the Subversion of the Republic of Venice; or Edinburgh Review, vol. xii. pp. 379—394.

VENIRE FACIAS, in law, is a judicial writ lying where two parties plead and come to issue, directed to the sheriff, to cause twelve men of the same neighbourhood to meet and try the same, and to say the truth upon the issue taken.

VE'NISON. *s.* (*venaison*, French.) Game; beast of chase; the flesh of deer (*Shakspeare*).

VENLO, a strong town of the Netherlands, in Upper Guelderland, and a place of trade for merchandise coming from the adjacent countries. In 1702, it surrendered to the allies, and was confirmed to the Dutch by the barrier treaty in 1715. It was taken by the French in 1794. It is seated on the E. side of the Meuse, opposite Fort St. Michael, 12 miles N. of Ruremonde. Lon. 6. 6 E. Lat. 51. 22 N.

VE'NOM. *s.* (*venin*, French.) Poison (*Dryden*).

To Ve'nom. *v. a.* To infect with venom; to poison; to envenom.

VE'NOMOUS. *a.* (from *venom.*) 1. Poisonous (*Shakspeare*). 2. Malignant; mischievous (*Addison*).

VE'NOMOUSLY. *ad.* Poisonously; mischievously; malignantly (*Dryden*).

VE'NOMOUSNESS. *s.* (from *venomous.*) Poisonousness; malignity.

VENT. *s.* (*fente*, French.) 1. A small aperture; a hole; a spiracle; passage at which any thing is let out (*Milton*). 2. Passage out of secrecy to public notice (*Wotton*). 3. The act of opening (*Philips*). 4. Emission; passage (*Addison*). 5. Discharge; means of discharge (*Mortimer*). 6. (*vente*, French.) Sale (*Pope*).

To Vent. *v. a.* (*venter*, Fr. from the noun.) 1. To let out at a small aperture. 2. To let out; to give way to (*Denham*). 3. To utter; to report (*Stephens*). 4. To emit; to pour out (*Shakspeare*). 5. To publish (*Raleigh*). 6. To sell; to let go to sale (*Carew*).

To Vent. *v. n.* To snuff: as, *he venteth in the air* (*Spenser*).

VENTA DE CRUZ, a town of Terra Firma, in the isthmus of Darien, seated on the river Chagre. Here the Spaniards used to bring the merchandise of Peru and Chili on mules from Panama, and embark it on the river for Porto Bello. It is 20 miles N. of Panama.

VE'NTAIL. *s.* (from *ventail*, French.) That part of the helmet made to lift up.

VENTA'NNA *s.* (Spanish.) A window (*Dryden*).

VENTER, in anatomy. A term formerly applied to the larger circumscribed cavities of the body, as the abdomen and thorax.

Venter is also used for the children by a woman of one marriage: there is in law a first and second venter, &c. where a man hath children by several wives; and how they shall take in descents of lands.

Venter inspiciendo, is a writ to search a woman that saith she is with child, and thereby withholdeth lands from the next heir: the trial whereof is by a jury of women.

VE'NTIDUCT. *s.* (*ventus* and *ductus.*) A passage for the wind (*Boyle*).

VENTILAGO, in botany, a genus of the class pentandria, order monogynia. Calyx tubular; petals five, scales opposite the stamens; capsule globular, ending in a long membranaceous wing, one-seeded. One species only, a climbing shrub of the East Indies, with numerous small, dirty, greenish flowers in a terminal panicle.

To VE'NTILATE. *v. a.* (*ventilo*, Latin.) 1. To fan with wind (*Woodward*). 2. To winnow; to fan. 3. To examine; to discuss (*Ayliffe*).

VENTILA'TION. *s.* (*ventilatio*, Latin.) 1. The act of fanning; the state of being fanned (*Addison*). 2. Vent; utterance: not in use (*Wotton*). 3. Refrigeration (*Harvey*).

VENTILATOR, a machine by which the noxious air of any close place, as an hospital, gaol, ship, chamber, &c. may be discharged and changed for fresh air.

The noxious qualities of bad air have been long known; and Dr. Hales and others have taken great pains to point out the mischiefs arising from foul air, and to prevent or remedy them. That philosopher proposed an easy and effectual one, by the use of his ventilators; the account of which was read before the Royal Society in May 1741; and a farther account of it may be seen in his Description of Ventilators, printed at London in 8vo. 1743; and still farther in part 2, p. 32, printed in 1758; where the uses and applications of them are pointed out for ships and prisons, &c. For what is said of the foul air of ships may be applied to that of gaols, mines, workhouses, hospitals, barracks, &c. In mines, ventilators may guard against the suffocations, and other terrible accidents arising from damps. The air of gaols has often proved infectious; and we had a fatal proof of this, by the accident that happened some years since at the Old Bailey sessions. After that, ventilators were used in the prison, which were worked by a small windmill, placed on the top of Newgate; and the prison became more healthy.

Dr. Hales farther suggests, that ventilators might be of use in making salt; for which purpose there should be a stream of water to work them; or they might be worked by a windmill, and the brine should be in long narrow canals, covered with boards of canvas, about a foot above the surface of the brine, to confine the stream of air, so as to make it act upon the surface of the brine, and carry off the water in vapours. Thus it might be reduced to a dry salt, with a saving of fuel, in winter and summer, or in rainy weather, or any state of the air whatever. Ventilators, he apprehends, might also serve for drying linen hung in low, long, narrow galleries, especially in damp or rainy weather, and also in drying woollen cloths, after they are fulled or dyed; and in this case, the ventilators might be worked by the fulling water-mill. Ventilators might also be an useful appendage to malt and hop kilns; and the same author is farther of opinion, that a ventilation of warm dry air from the adjoining stove, with a cautious hand, might be of service to trees and plants in green-houses; where it is well known that air full of the rancid vapours which perspire from the plants is very unkindly to them, as well as the vapours from human bodies are to men; for fresh air is as necessary to the healthy state of vegetables as of animals.—Ventilators are also of excellent use for drying corn, hops, and malt. Gunpowder may be thoroughly dried, by blowing air up through it by means of ventilators; which is of great advantage to the strength of it. These ventilators, even the smaller ones, will also serve to purify most easily and effectually the bad air of a ship's well, before a person is sent down into it, by blowing air through a trunk, reaching near the bottom of it. And in a similar manner may stinking water, and ill-tasted milk, &c. be sweetened, viz. by passing a current of air through them, from bottom to top, which will carry the offensive particles along with it.

For these and other uses to which they might be applied, as well as for a particular account of the construction and disposition of ventilators in ships, hospitals, prisons, &c. and the benefits attending them, see Hale's Treatise on Ventilators, part 2, passim; and the Philos. Trans. vol. 49.

Mr. Abernethy a few years ago proposed a plan for the ventilation of ships, which consists in causing two tubes to descend from above the deck to the bottom of a vessel, or as low as ventilation is required; and which should communicate by smaller pipes (open at their extremities) with those places designed to be ventilated. There should be a contrivance for stopping these communicating pipes, so that ventilation may be occasionally prevented from taking place, or confined to any particular part of the vessel.

One of the principal air tubes should descend as near to the stern of the vessel as convenient, and the other as near to the stem.

Through that tube which is in the head, the foul air is to be extracted; and through that which is in the stern, the fresh air is to descend to the different decks and other apartments of the vessel.

The extraction of the air is easily effected in the following manner; let a transverse tube be fitted to that which descends in the head of the vessel; it may be sunk within the level of the deck, so as to cause no inequality of surface. Let it be continued till it comes beneath the fire-place, then ascend in a perpendicular direction through the fire, and open a little above it; or it may be made to communicate with the chimney. It would be more convenient if the fire was near the place where the tube rises through the deck; but the experiment must equally succeed, if the tube be made to descend again till it is beneath the common fire-place. The effect that will result from this contrivance is obvious; when the tube which passes through the fire is heated, the air will ascend with a force proportionable to its levity, and the ascending column can only be supplied from below, consequently it must come from all those parts of the ship with which the main tube communicates.

When the ports are open, the quantity of air thus exhausted from the ship will be supplied from all quarters; but if they were all shut, and the hatchways and other openings completely closed, the renewal of fresh air is made certain, by means of the tube which descends in the stern. The main air tube, where it rises above the deck in the stern, should have an horizontal one fitted to it, which might be made to traverse, so that it could be turned to windward; it might also expand at its extremity, like the mouth of a trumpet; and thus perfectly fresh air must enter, and the force of the gale would tend to impel it into the vessel.

When that part of the tube which passes through the fire is red hot, the draught which would be thus occasioned might perhaps be too great, and the open pipes which communicate with the decks might emit and imbibe the fresh air in so direct a stream, that it might be injurious to those persons within the current.

Mr. Abernethy therefore thinks it would be better if those smaller pipes which lead from the main tubes were made to run along the decks, and communicate with them by numerous orifices. Two pipes opening into the main exhausting tube might be extended along the tops of the deck, in the angle formed between the sides and the cieling: and thus the air would be extracted equally from all parts, and in a manner not likely to occasion injurious currents. Some division of the stream of air which enters from the stern might also be made, if it were thought necessary.

Thus a very complete, and in no way injurious, ventilation may be obtained: the air in the vessel would be perfectly changed when the fire was strong, without expence or trouble; and a gradual and salubrious alteration of it might at all times be made, by a very little additional quantity of fuel. The air tubes should consist of separate joints, so that occasionally they might be taken to pieces; and to prevent their being injured or put out of order by rough usage, the copper pipes should be made of considerable strength, placed against the sides of the vessel, and even incased in wood.

VENTRICLES. A term given by anatomists to the cavities of the brain and heart. See CEREBRUM and HEART.

VENTRICOSE. Ventricosus. In botany. Bellied; distended; swelling out in the middle. Ventricosa spica: a lateribus gibba. Swelling out at the sides.—Applied to the perianth, in æsculus, and to the corol in digitalis.

VENTRICULOUS. Swelling out a little: as the perianth of salicornia.

VENTRICULUS PULMONARIS. The right ventricle of the heart.

VENTRICULUS SUCCENTURIATUS. That portion of the duodenum, which is surrounded by the peritoneum, is sometimes so large as to resemble a second stomach, and is so called by some writers.

VENTRI'LOQUIST. *s.* (*ventriloque*, Fr.) One who speaks in such a manner, as that the sound seems to issue from his belly. Such was the original import of the word; it is now extended: see the next article.

VENTRILOQUISM, an art by which certain persons can so modify their voice, as to make it appear to the audience to proceed from any distance, and in any direction. Some faint traces of this art are to be found in the writings of the ancients; and it is the opinion of M. De la Chapelle, who in the year 1772 published an ingenious work on the subject, that the responses of many of the oracles were delivered by persons thus qualified to serve the purposes of delusion. As the ancient ventriloquists, when exercising their art, seemed generally to speak from their own bellies, the name by which they were designed was abundantly significant: but it is with no great propriety that modern performers are called ventriloquists, and their art ventriloquism, since they appear more frequently to speak from the pockets of their neighbours, or from the roof or distant corners of the room, than from their own mouths or their own bellies.

From Brodeau, a learned critic of the sixteenth century, we have the following account of the feats of a capital ventriloquist and cheat, who was valet-de-chambre to Francis I. The fellow, whose name was Louis Brabant, had fallen desperately in love with a young, handsome, and rich heiress; but was rejected by the parents as an unsuitable match for their daughter, on account of the lowness of his circumstances. The young lady's father dying, he made a visit to the widow, who was totally ignorant of his singular talent. Suddenly, on his first appearance, in open day, in her own house, and in the presence of several persons who were with her, she heard herself accosted in a voice perfectly resembling that of her dead husband, and which seemed to proceed from above, exclaiming, "Give my daughter in marriage to Louis Brabant; he is a man of great fortune, and of an excellent character. I now endure the inexpressible torments of purgatory for having refused her to him. If you obey this admonition, I shall soon be delivered from this place of torment. You will at the same time provide a worthy husband for your daughter, and procure everlasting repose to the soul of your poor husband."

The widow could not for a moment resist this dread summons, which had not the most distant appearance of proceeding from Louis Brabant; whose countenance exhibited no visible change, and whose lips were close and motionless during the delivery of it. Accordingly, she consented immediately to receive him for her son-in-law. Louis's finances, however, were in a very low situation; and the formalities attending the marriage-contract rendered it necessary for him to exhibit some show of riches, and not to give the ghost the lie direct. He accordingly went to work upon a fresh subject, one Cornu, an old and rich banker of Lyons; who had accumulated immense wealth by usury and extortion, and was known to be haunted by remorse of conscience on account of the manner in which he had acquired it.

Having contracted an intimate acquaintance with this man, he, one day while they were sitting together in the usurer's little back parlour, artfully turned the conversation on religious subjects, on demons and spectres, the pains of purgatory, and the torments of hell. During an interval of silence between them, a voice was heard, which to the astonished banker seemed to be that of his deceased father, complaining, as in the former case, of his dreadful situation in purgatory, and calling upon him to deliver him instantly thence, by putting into the hands of Louis Brabant, then with him, a large sum for the redemption of Christians then in slavery with the Turks; threatening him at the same time with eternal damnation if he did not take this method to expiate likewise his own sins. The reader will naturally suppose that Louis Brabant affected a due degree of astonishment on the occasion; and further promoted the deception, by acknowledging his having devoted himself to the prosecution of the charitable design imputed to him by the ghost. An old usurer is naturally suspicious. Accordingly the wary banker made a second appointment with the ghost's delegate for the next day; and, to render any design of imposing upon him utterly abortive, took him into the open fields, where not a house, or a tree, or even a bush, or a pit, was in sight, capable of screening any supposed confederate. This extraordinary caution excited the ventriloquist to exert all the powers of his art. Wherever the banker conducted him, at every step his ears were saluted on all sides with the complaints and groans not only of his father, but of all his deceased relations, imploring him for the love of God, and in the name of every saint in the calendar, to have mercy on his own soul and theirs, by effectually seconding with his purse the intentions of his worthy companion. Cornu could no longer resist the voice of heaven, and accordingly carried his guest home with him, and paid him down 10,000 crowns. with which the honest ventriloquist returned to Paris, and married his mistress. The catastrophe was fatal. The secret was afterwards blown, and reached the usurer's ears; who was so much affected by the loss of his money, and the mortifying railleries of his neighbours, that he took to his bed and died.

This trick of Louis Brabant is even exceeded by an innocent piece of waggery played off not forty years ago by another French ventriloquist on a whole community. We have the story from M. De la Chapelle, who informs us, that M. St. Gill, the ventriloquist, and his intimate friend, returning home from a place whither his business had carried him, sought for shelter from an approaching thunder-storm in a neighbouring convent. Finding the whole community in mourning, he enquired the cause, and was told that one of their body had died lately, who was the ornament and delight of the whole society. To pass away the time, he walked into the church, attended by some of the religious, who shewed him the tomb of their deceased brother, and spoke feelingly of the scanty honours they had bestowed on his memory. Suddenly a voice was heard, apparently proceeding from the roof of the choir, lamenting the situation of the defunct in purgatory, and reproaching the brotherhood with their lukewarmness and want of zeal on his own account. The friars, as soon as their astonishment gave them power to speak, consulted together, and agreed to acquaint the rest of the community with this singular event, so interesting to the whole society. M. St. Gill, who wished to carry on the joke still farther, dissuaded them from taking this step, telling them that they would be treated by their absent brethren as a set of fools and visionaries. He recommended to them, however, the immediately calling of the whole community into the church, where the ghost of their departed brother might probably reiterate his complaints. Accordingly all the friars, novices, lay-brothers, and even the domestics of the convent, were immediately summoned and collected together. In a short time the voice from the roof renewed its lamentation and reproaches, and the whole convent fell on their faces, and vowed a solemn reparation. As a first step, they chanted a De profundis in a full choir: during the intervals of which the ghost occasionally expressed the comfort he received from their pious exercises and ejaculations on his behalf. When all was over, the prior entered into a serious conversation with M. St. Gill; and on the strength of what had just passed, sagaciously inveighed against the absurd incredulity of modern sceptics and pretended philosophers, on the article of ghosts and apparitions. M. St. Gill thought it now high time to disabuse the good fathers. This purpose, however, he found it extremely difficult to effect, till he had prevailed upon them to return with him into the church, and there be witnesses of the manner in which he had conducted this ludicrous deception.

A ventriloquist, who performed feats somewhat similar to these, made his appearance in Edinburgh, and many of the other towns of Great Britain, a few years ago. He imitated successfully the voice of a squeaking child, and made it appear to proceed from whatever place he chose: from the pockets of the company; from a wooden doll, with which he held many spirited conversations; from beneath a hat or a wine-glass, and out of any person's foot or hand. When the voice seemed to come from beneath a glass or hat, it was dull and on a low key, as sounds confined always are; and what evinced his dexterity was, that when the glass was raised from the table during the time of his speaking, the words or syllables uttered afterwards were on a higher key, in consequence, one would have thought, of the air being readmitted to the speaker. This part of the experiment failed, however, when the management of the glass was at a distance committed to any of the company; but as the room was not well illuminated, we are inclined to attribute this failure to the ventriloquist not being able to perceive at what precise instant of time the glass was removed from the table. The same artist imitated the tones of a scolding old woman, disturbed at unseasonable hours by a person demanding admission into her house; but this exhibition did not to us appear masterly. The tones of the old woman and the child were not accurately discriminated: the child was a young scold, and the scold spoke like an angry child. We have heard that, when in Edinburgh, the same practitioner astonished a number of persons in the Fish-market, by making a fish appear to speak, and give the lie to its vender, who affirmed that it was fresh, and caught in the morning.

We have seen an eminent philosopher of our own time, who had no previous practice of this art, but when speaking on the subject in a mixed company, took up an hat and, folding the flaps together, said, by way of example, "Suppose I had a small monkey in this hat;" and then cautiously putting his hand in, as if to catch it, he imitated the chatter of the supposed struggling animal, at the same time that his own efforts to secure it had a momentary impression on the spectators, which left no time for them to question whether there was a monkey in it or not: this impression was completed when, the instant afterwards, he pulled out his hand as if hurt, and exclaimed, "he has bit me." It was not till then that the impression of reality gave way to the diversion arising from the mimic art; and one of the company, even then, cried out, "is there really a monkey in the hat?"

In this manner it was that, at the beginning of the last century, the famous Tom King, who is said to have been the first man who gave public lectures on experimental philosophy in this country, was attended by the whole fashionable world, for a succession of many nights, to hear him kill a calf. This performance was done in a separated part of the place of exhibition, into which the exhibitor retired alone; and the imagination of his polite hearers was taxed to supply the calf and three butchers, besides a dog who sometimes raised his voice and was checked for his unnecessary exertions. It appears, from traditional narrative, that the calf was heard to be dragged in, not without some efforts and conversation on the part of the butchers, and noisy resistance from the calf; that they conversed on the qualities of the animal, and the profits to be expected from the veal; and that, as they proceeded, all the noises of knife and steel, of suspending the creature, and of the last fatal catastrophe, were heard in rapid succession, to the never-failing satisfaction of the attendants; who, upon the rise of the curtain, saw that all these imaginary personages had vanished, and Tom King alone remained to claim the applause.

A very able ventriloquist, Fitz-James, performed in public, in Soho-square, about seven years ago. He personated various characters by appropriate dresses; and by a command of the muscles of his face he could very much alter his appearance. He imitated many inanimate noises, and, among others, the repetition of noises of the water-machine at Marli. He conversed with some statues, which replied to him; and also with some persons supposed to be in the room above, and on the landing-place; gave the watchman's cry, gradually approaching, and when he seemed opposite the window, Fitz-James opened it, and asked what the time was, received the answer, and during his proceeding with his cry, Fitz-James shut the window, immediately upon which the sound became weaker, and at last insensible. In the whole of his performance it was clear that the notions of the audience were governed by the auxiliary circumstances, as to direction, &c. This mimic had, at least, six different habitual modes of speaking, which he could instantly adopt one after the other, and with so much rapidity, that when in a small closet, parted off in the room, he gave a long, confused, and impassioned debate of democrats (in French, as almost the whole of his performance was); it seemed to proceed from a multitude of speakers: and an inaccurate observer might have thought that several were speaking at once. A ludicrous scene of drawing a tooth was performed in the same manner.

These examples, and many more which might be added, are sufficient in proof that ventriloquism is the art of mimicry, an imitation applied to sounds of every description, and attended with circumstances which produce an entertaining deception, and lead the hearers to imagine that the voice proceeds from different situations. When distant, and consequently low voices are to be imitated, the articulation may be given with sufficient distinctness, without moving the lips or altering the countenance.

VE'NTURE. *s.* (*aventure*, French.) 1. A hazard; an undertaking of chance and danger (*Locke*). 2. Chance; hap (*Bacon*). 3. The thing put to hazard; a stake (*Shakspeare*). 4. *At a* VENTURE. At hazard; without much consideration; without any thing more than the hope of a lucky chance (*Spenser*).

To VE'NTURE. *v. n.* (from the noun.) 1. To dare (*Addison*). 2. To run hazard (*Dryden*). 3. *To* VENTURE *at. To* VENTURE *on* or *upon.* To engage in; or make attempts without any security of success, upon mere hope (*Shakspeare. Bacon*).

To VE'NTURE. *v. a.* 1. To expose to hazard (*Shakspeare*). 2. To put or send on a venture (*Carew*).

VE'NTURER. *s.* He who ventures.

VE'NTURESOME. *a.* (from *venture.*) Bold; daring.

VE'NTURESOMELY. *ad.* In a bold or daring manner.

VE'NTUROUS. *a.* (from *venture.*) Daring; bold; fearless; ready to run hazards (*Pope*).

VE'NTUROUSLY. *ad.* Daringly; fearlessly; boldly (*Bacon*).

VE'NTUROUSNESS. *s.* (from *venturous.*) Boldness; willingness to hazard (*Boyle*).

VENUE, the neighbourhood from whence juries are to be summoned for trial of causes. In local actions, as of trespass and ejectment, the venue is to be from the neighbourhood of the place where the lands in question lie; and in all real actions the venue must be laid in the county where the thing is for which the action is brought; but in transitory actions, for injuries that may have happened any where, as debt, detinue, slander, or the like, the plaintiff may declare in what county he pleases, and then the trial must be in that county in which the declaration is laid. Though if the defendant will make affidavit that the cause of action, if any, arose not in that, but in another county, the court will direct a change of the venue, and oblige the plaintiff to declare in the proper county. And the court will sometimes move the venue from the proper jurisdiction (especially of the narrow and limited kind), upon a suggestion duly supported, that a fair and impartial trial cannot be had therein. With respect to criminal cases, it is ordained by statute 21 James I. c. 4, that all informations on penal statutes shall be laid in the counties where the offences were committed.

VENUS, the goddess of beauty, the mother of love, the queen of laughter, the mistress of the graces and of pleasures, and the patroness of courtezans. Some mythologists speak of more than one Venus. Of these, however, the Venus sprung from the froth of the sea, after the mutilated part of the body of Uranus had been thrown there by Saturn, is the most known. She arose from the sea near the island of Cyprus, or Cythera. She was soon after carried to heaven, where all the gods admired her beauty. Jupiter attempted to gain her affections, but Venus refused, and the god, to punish her obstinacy, gave her in marriage to his ugly son Vulcan. She, however, defiled her husband's bed by her amours with the gods. (See MARS, ALECTRYON, ADONIS, ANCHISES, ÆNEAS.) The power of Venus over the heart was supported by a girdle, called *zone* by the Greeks, and *cestus* by the Latins. This mysterious girdle gave beauty, grace, and elegance, when worn even by the most deformed; it excited love, and rekindled extinguished flames. Juno herself was indebted to this powerful ornament, to gain the favours of Jupiter. The contest of Venus for the golden apple of discord is well known. She gained the prize over Pallas and Juno, (see PARIS, DISCORDIA), and rewarded her impartial judge with the hand of the fairest woman in the world. The worship of Venus was universally established; statues and temples were erected to her in every kingdom, as to a divinity who presided over generation, and by whose influence mankind existed. The rose, the myrtle, and the apple, were sacred to Venus; and among birds the dove, the swan, and the sparrow were her favourites; and among fishes, those called the aphya and the lycostomus. She is generally represented with her son Cupid, on a chariot drawn by doves.

VENUS, the most beautiful star in the heavens, known by the names of the morning and evening star, likewise keeps near the sun, though she recedes from him almost double the distance of Mercury. She is never seen in the eastern quarter of the heavens when the sun is in the western; but always seems to attend him in the evening, or to give notice of his approach in the morning. The planet Venus presents the same phenomena with Mercury; but her different phases are much more sensible, her oscillations wider, and of longer duration. Her greatest distance from the sun varies from 45° to nearly 48°, and the mean duration of a complete oscillation is 584 days. Venus has been sometimes seen moving across the sun's disc in the form of a round black spot, with an apparent diameter of about 59″. A few days after this has been observed, Venus is seen in the morning, west of the sun, in the form of a fine crescent, with the convexity turned toward the sun. She moves gradually westward with a retarded motion, and the crescent becomes more full. In about ten weeks she has moved 46° west of the sun, and is now a semicircle, and her diameter is 26″. She is now stationary. She then moves eastward with a motion gradually accelerated, and overtakes the sun about 9½ months after having been seen on his disc. Sometime after, she is seen in the evening, east of the sun, round, but very small. She moves eastward, and increases in diameter, but loses of her roundness, till she gets about 46° east of the sun, when she is again a semicircle. She now moves westward, increasing in diameter, but becoming a crescent like the waning moon; and, at last, after a period of nearly 584 days, comes again into conjunction with the sun with an apparent diameter of 59″. She does not move exactly in the plane of the ecliptic, but deviates from it several degrees. Like Mercury, she sometimes crosses the sun's disc. The duration of these transits, as observed from different parts of the earth's surface, are very different: this is owing to the parallax of Venus, in consequence of which different observers refer to different parts of the sun's disc, and see her describe different chords on that disc. In the transit which happened in 1769, the difference of its duration, as observed at Otaheite and at Wardhuys in Lapland, amounted to 23 minutes, 10 seconds. This difference gives us the parallax of Venus, and of course her distance from the earth during a conjunction. The knowledge of this parallax enables us, by a method to be afterwards described, to ascertain that of the sun, and consequently to discover its distance from the earth. The great variations of the apparent diameter of Venus demonstrate that her distance from the earth is exceedingly variable. It is largest when the planet passes over the surface of the sun. Her mean apparent diameter is 58″. See ASTRONOMY.

VENUS, the name formerly given to copper by the chemists.

VENUS, in zoology, a genus of the class vermes, order testacea. Animal a tethys; shell bivalve; the frontal margin flattened, with incumbent lips; hinge with three teeth, all of them approximate, the lateral ones divergent at the tip. A hundred and fifty-four species, scattered through the seas and coasts of the globe; fourteen common to our own shores. They are thus subdivided.

A. Shell somewhat heart-shaped.

B. Orbicular.

C. Oval, a little angular near the beaks.

The first subdivision contains the largest number, the third the fewest. They are of very different sizes, and several of them have a near approach to the cardium. We shall select a specimen or two.

1. V. dione. Shell transversely grooved, with a double row of spines on the flattened side. The shell nearly heart-shaped, equivalve, rounded, pale pink, a little gibbous before and behind, and marked with transverse, parallel, sharpened ribs. Inhabits the American ocean, and is extremely rare and valuable.

2. V. dysera. Shell somewhat heart-shaped, with transverse, remote, reflected grooves; the margin crenulate. Inhabits the American ocean; rare and valuable; varies in colour and marks; ribs thin, sharp.

3. V. mercenaria. Shell thick, strong, with slight, transverse striæ, and covered with a brown cuticle, within pale violet; depression behind the beaks, ovate; margin crenulate: above three inches long, and nearly the same broad. Inhabits Europe and North America, and is found fossile in the mountains of Swe-

den. In North America these shells are called clams, and the Indians make their wampum or Indian money of them. They are found also occasionally on our own coasts.

4. V. Islandica. Shell thick, strong, with slight transverse striæ, and covered with a brown cuticle, within pure white; without impression behind the beaks; margin entire. Inhabits Europe, Africa, and the Caspian sea, and found also on our own coasts; three and a half inches long, and nearly four broad. The first is eaten by the Icelanders.

VENUS'S COMB, in botany. See SCANDIX.

VENUS'S FLY-TRAP, in botany. See DIONÆA.

VENUS'S LOOKING-GLASS, in botany. See CAMPANULA.

VENUS'S NAVELWORT, n botany. See CYNOGLOSSUM.

VEPRECULÆ. (from *vepres*, a brier.) The name of the fifty-fourth order in Linnéus's Fragments, and of the thirty-first in his Natural Orders.

VERA CRUZ, a city of Mexico, in Tlascala, on the gulf of Mexico. The harbour is defended by a fort, situate on a rock of the island St. Juan de Ulhua, nearly adjoining. This port is the natural centre of the treasure and merchandise of Mexico, and it receives much East India produce, by way of Acapulco, from the Philippine islands. Here the ships from Spain receive the produce of the gold and silver mines of Mexico. An annual fair is held here for the rich merchandise of the old world; and such crowds of Spaniards attend, that tents are erected for their accommodation. The Old Town, 16 miles to the N.W. is famous on account of the landing of Cortez, with 500 Spaniards, when he undertook the conquest of Mexico. Vera Cruz is 200 miles E.S.E. of Mexico. Lon. 96. 50 W. Lat. 19. 5 N.

VERA PAZ, a province of Mexico, in the audience of Guatimala; bounded on the N. by Jucatan, E. by the bay and province of Honduras, S. by Guatimala Proper, and W. by Chiapa. It is full of mountains and forests; but there are many fertile valleys, which feed a great number of horses and mules. There are also many towns and villages of the native Americans. The capital of the same name, or Coban, is a bishop's see, but is inconsiderable. It is 120 miles N.E. of Guatimala. Lon. 89. 0 W. Lat. 15. 10 N.

VERA'CIOUS. *a.* (*verax*, Latin.) Observant of truth.

VERA'CITY. *s.* (*verax*, Latin.) 1. Moral truth; honesty of report. 2. Physical truth; consistency of report with facts (*Addison*).

VERATRUM, in botany, a genus of the class polygamia, order monœcia. Calyxless; petals six; stamens seven. Herm.: pistils three; capsules three; many seeded. Male: rudiment of a pistil. Four species, as follow.

1. V. album. White hellebore. Raceme more than decompound; the divisions spiked; corols erect. A native of Greece, with perennial root; stems three or four feet high; flowers in spikes, and terminal, of a greenish-white or herbaceous colour, appearing in July. This plant was largely resorted to by the ancients as an antispasmodic, and is still employed for the same purpose in modern practice, under the name of HELLEBORUS VERUS, which see.

2. V. nigrum. Dark-flowered veratrum. Black hellebore. Raceme compound; corols much spread: root perennial; stalks higher than the preceding; flowers dark red, with the petals patulous and flat. A native of Austria and Siberia. The root of this species is also employed in medicine; principally as an emmenagogue and in cases of mania. See HELLEBORUS NIGER.

3. V. luteum. Yellow-flowered veratrum. Racemes quite simple; leaves sessile; flowers spiked, yellowish. A native of North America.

4. V. viride. Green-flowered veratrum. Racemes more than decompound; corols bell-shaped; the claws thickened at the side within. A native of North America.

VERB. *s.* (*verbe*, French; *verbum*, Latin.) A part of speech signifying existence, or some modification thereof, as action, passion. See GRAMMAR.

VE'RBAL. *a.* (*verbal*, French; *verbalis*, Latin.) 1. Spoken; not written. 2. Oral; uttered by mouth (*Shakspeare*). 3. Consisting in mere words (*Glanville*). 4. Verbose; full of words (*Shakspeare*). 5. Minutely exact in words (*Pope*). 6. Literal; having word answering to word (*Denham*). 7. (In grammar.) A verbal noun is a noun derived from a verb.

VERBA'LITY. *s.* (from *verbal.*) Mere words; bare literal expression (*Brown*).

VE'RBALLY. *ad.* (from *verbal.*) 1. In words; orally (*South*). 2. Word for word (*Dryden*).

VERBASCUM. Mullein. In botany, a genus of the class pentandria, order monogynia. Corol wheel-shaped, a little irregular; stamens bearded; capsule superior, two-celled, two-valved; stigma simple. Nineteen species; natives almost entirely of Europe; six found wild on the road sides, banks, in the wastes and lanes of our own country. The following are cultivated.

1. V. Boerhaavii. Annual mullein.
2. V. blattaria. Moth mullein.
3. V. thapsus. Great mullein.
4. V. phlomoides. Woolly mullein.
5. V. lychnitis. White mullein.
6. V. sinuatum. Scallop-leaved mullein.
7. V. ferrugineum. Rusty mullein.
8. V. Phœniceum. Purple mullein.
9. V. myconi. Borage-leaved mullein.
10. V. nigrum. Black mullein.

Two of these have long occupied a place in the materia medica, verbascum nigrum and verbascum thapsus, and appear to be ordered indifferently by this name in the pharmacopœias. The flowers, leaves, and roots, are used occasionally as mild adstringents. The leaves possess a roughish taste, and promise to be of service in diarrhœas and other debilitated states of the intestines.

The black mullein, which is found wild in our wastes and lanes, with yellow blossoms tipt with purple, affords a farina on which bees feed luxuriously. Swine eat the stem and leaves; sheep are not fond of it; cows, horses, and goats, refuse it.

VERBA'TIM. *ad.* (Latin.) Word for word.

VERBENA. Vervain. In botany, a genus of the class diandria, order monogynia. Corol funnel-form, nearly equal, curved; calyx with one of the teeth truncate; seeds two or four, naked; stamens two or four. Nineteen species; chiefly natives of America; a few of the East Indies and of Europe; one common to our own country. They are thus subdivided:

A. With two stamens and two seeds.
B. With four stamens.

The following species are cultivated:

1. V. Indica. Indian vervain.
2. V. supina. Trailing vervain.
3. V. orubica. Betony-leaved vervain.
4. V. Jamaicensis. Jamaica vervain.
5. V. Mexicana. Mexican vervain.
6. V. globlifora. Globe-flowered vervain.
7. V. bonariensis. Cluster-flowered vervain.
8. V. trastata. Halbert-leaved vervain.
9. V. triphylla. Three-leaved vervain.
10. V. officinalis. Officinal vervain.

The last has been long employed in medicine. It is destitute of odour, and to the taste manifests but a slight degree of bitterness and adstringency. In former times the verbena seems to have been held sacred, and was employed in celebrating the sacrificial rites; and with a view to this, more than the natural power of the plant, it was worn suspended about the neck as an amulet.

This practice, thus founded on superstition, was, however, in process of time, adopted in medicine; and therefore to obtain its virtues more effectually, the vervain was directed to be bruised before it was appended to the neck; and of its good effects thus used for inveterate head-aches, Forestus relates a remarkable instance. In still later times it has been employed in the way of cataplasm, by which we are told the most severe and obstinate cases of cephalagia have been cured, for which we have the authorities of Etmuller, Hartmann, and more especially De Hean. Notwithstanding these testimonies in favour of vervain, it has deservedly fallen into disuse in Britain; nor has the pamphlet of Mr. Morley, written professedly to recommend its use in scrophulous affections, had the effect of restoring its medical character. This gentleman directs the root of vervain to be tied with a yard of white sattin ribband round the neck, where it is to remain till the patient recovers. He also has recourse to infusions and ointments prepared from the leaves of the plant, and occasionally calls in aid the most active medicines of the materia medica.

The plant is found wild on our own road sides: the spikes are filiform, panicled; leaves many-cleft, jagged; flowers pale blue. Sheep eat it; cows, horses, and goats, refuse it.

To **VE'RBERATE.** *v. a.* (*verbero*, Latin.) To beat; to strike.

VERBERA'TION. *s.* (from *verberate.*) Blows; beating (*Arbuthnot*).

VERBESINA, in botany, a genus of the class syngenesia, order polygamia superflua. Receptacle chaffy; down awned; calyx in a double row; florets of the ray about five. Sixteen species; natives of the East or West Indies. The following are cultivated:

1. V. alata. Wing-stalked verbesina.
2. V. Chinensis. Chinese verbesina.
3. V. nodiflora. Sessile-flowered verbesina.
4. V. fruticosa. Shrubby verbesina.
5. V. gigantea. Tree verbesina.

They are increased by sowing the seeds on a moderate hot-bed, or in pots plunged into it, in the early part of spring; after they appear they are to be managed as tender annuals.

VERBERIE, an ancient town of France, in the department of Oise, seated on the river Oise, 10 miles N.E. of Senlis. Lon. 2. 51 E. Lat. 49. 22 N.

VERBO'SE. *a.* (*verbosus*, Latin.) Exuberant in words; prolix; tedious by multiplicity of words (*Prior*).

VERBO'SITY. *s.* (from *verbose.*) Exuberance of words; much empty talk (*Broome*).

VERCELI, a strong town of Piedmont, capital of a lordship of the same name, with a bishop's see, a citadel, and a castle. The town-house, the governor's palace, and the hospital, are handsome structures. It is seated at the confluence of the Sessia and Cerva, 10 miles N.W. of Casal, and 40 N.E. of Turin. Lon. 8. 24 E. Lat. 45. 31 N.

VERCHOLENSK, a town of Russia, in the government of Irkutsk, seated on the Lena, 120 miles N. of Irkutsk. Lon. 105. 35 E. Lat. 54. 0 N.

VERCHOTURE, a town of Russia, in the government of Perm, with a bishop's see. This was the first town the Russians built in Siberia. It is situate 120 miles N. of Catharinenburg. Lon. 60. 15 E. Lat. 58. 45 N.

VERD (Cape), a promontory on the W. coast of Africa, 45 miles N.W. of the mouth of the Gambia. Lon. 17. 33 W. Lat. 14. 45 N.

Verd Islands (Cape). Islands in the Atlantic, above 300 miles W. of the coast of Africa, between 13 and 19° N. lat. They were discovered, in 1446, by Anthony Noel, a Genoese, in the service of Portugal, and received their general name from their situation opposite Cape Verd. The principal are ten in number, lying in a semicircle. Their names are St. Antonio, St. Vincent, St. Lucio, St. Nicolas, Sal, Bonavista, Mayo, St. Jago, Fuego, and Bravos.

VE'RDANT. *a.* (*verdoiant*, Fr.) Green (*Milton*).

VERDEN, a duchy of Germany, in the circle of Lower Saxony, 28 miles long, and nearly as much broad; bounded on the E. and S. by the duchy of Lunenberg, on the W. by the Weser and the duchy of Bremen, and on the N. by the duchies of Bremen and

Lunenburg. It consists chiefly of heaths and high dry lands; but there are good marshes on the river Weser and Aller. In 1712 the Danes wrested this duchy from Sweden, and, in 1715, ceded it to the elector of Hanover; which cession, in 1718, was confirmed by the Swedes. The inhabitants are Lutherans.

VERDEN, a town of Lower Saxony, capital of a duchy of the same name. It contains four churches, and is seated on a branch of the Aller, 26 miles S.E. of Bremen. Lon. 9. 0 E. Lat. 53. 10 N.

VERDERER, a judicial officer of the king's forest, elected (under his majesty's writ) by a majority of votes in a convened county court of the shire in which the forest lies, and there sworn before the sheriff, to keep and maintain the assizes and laws of the forest; and also to review, receive, and enrol, all the attachments and presentments of all manner of trespasses of the forest in respect to vert and venison.

The official department of verderer bears a great similitude to that of coroner; for as the coroner, upon notice of a sudden or accidental death (if attended with circumstances to render the inquisition necessary), is to take a personal view of the body, and to make inquiry, upon the joint oaths of twelve men, how and by what means the person came by his or her death, and who and what was the occasion thereof; so it is the official duty of the verderer to look after and view the beasts of the forest; for in consequence of any of these being found hurt, wounded, or slain, upon notice given to the verderer, he is to take a view of the same, and to cause a jury of twelve men to be summoned from the surrounding district, that an inquisition may be made to discover (if possible) how and by whom the said beast was hurt, wounded, or killed. The office of the verderer at the court of attachments is to sit there to see, hear, and examine the attachments of the forest, both in vert and in venison, and to receive the same of the subordinate officers, or those who may attend to present them there, and then to enter them into their own rolls.

VE′RDICT. *s.* (*verum dictum*, Latin.) 1. The determination of the jury declared to the judge (*Spenser*). 2. Declaration; decision; judgment (*South*).

VERDIGRIS, the rust of copper, in mineralogy. See CUPRUM.

VERDITER, a kind of mineral substance, sometimes used by the painters, &c. for a blue; but more usually mixed with a yellow for a green colour.

VERDOY, in heraldry, denotes a bordure of a coat of arms, charged with any kinds or parts of flowers, fruits, seeds, plants, &c.

VERDUN, a town of France, in the department of Meuse, with a bishop's see, and a strong citadel. Its fortifications were constructed by the chevalier de Ville and marshal de Vauban; the latter of whom was a native of this place. In 1755, great part of the cathedral was destroyed by lightning. Verdun was taken by the Prussians in 1792, but retaken soon after. The inhabitants are noted for making fine sweetmeats. It is seated on the Meuse, which runs through the middle, 42 miles S.W. of Luxemburg, and 150 E. of Paris. Lon. 5. 22 E. Lat. 49. 9 N.

VERDUN, a town of France, in the department of Upper Garonne, seated on the Garonne, 22 miles N.W. of Toulouse. Lon. 1. 20 E. Lat. 43. 54 N.

VE′RDURE. *s.* (*verdure*, French.) Green; green colour (*Milton*).

VE′RDUROUS. *a.* (from *verdure.*) Green; covered, or decked with green (*Milton*).

VEREA, a town of Turkey in Europe, in the province of Macedonia, and the see of a Greek metropolitan. It is 48 miles W. of Salonichi, and 115 E. of Valona. Lon. 22. 18 E. Lat. 40. 40 N.

VEREA, in botany, a genus of the class octandria, order tetragynia. Calyx four-leaved; corol salver-shaped, four-cleft, with an inflated tube; nectariferous scales four, at the base of the germs; capsules four, superior, one-celled, many-seeded. One species only, a succulent shrub of Sierra Leone, with terminal, axillary racemes and yellow flowers.

VERECU′ND. *a.* (*verecundus*, Lat.) Modest; bashful.

VERGE. *s.* (*verge*, French; *virga*, Latin.) 1. A rod, or something in form of a rod, carried as an emblem of authority. The mace of a dean (*Swift*). 2. (*vergo*, Latin.) The brink; the edge; the utmost border (*Shakspeare*).

VERGE, signifies the compass of the king's court, which bounds the jurisdiction of the lord steward of the household; and which is thought to have been twelve miles round.

The term verge is also used for a stick or rod, whereby one is admitted tenant to a copyhold estate, by holding it in his hand, and swearing fealty to the lord of the manor.

To VERGE. *v. n.* (*vergo*, Latin.) To tend; to bend downward (*Pope*).

VERGERS, certain officers of the courts of King's Bench and Common Pleas, whose business it is to carry white wands before the judges.

There are also vergers of cathedrals and collegiate churches, who carry a rod tipped with silver before the bishop, dean, &c.

VERGETTE, in heraldry, denotes a pallet, or small pale; and hence, a shield divided by such pallets is termed vergette.

VERI′DICAL. *a.* (*veridicus*, Latin.) Telling truth.

VERIFICA′TION. *s.* (from *verify.*) Confirmation by argument or evidence (*Boyle*).

VE′RIFIER. *s.* (from *verify.*) One who assures a thing to be true.

To VE′RIFY. *v. n.* (*verifier*, French.) To justify against charge of falsehood; to confirm; to prove true (*Hooker*).

VE′RILY. *ad.* (from *very.*) 1. In truth; certainly (*Shakspeare*). 2. With great confidence (*Swift*).

VERINA, a town of Terra Firma, in the province of Comana, celebrated for its tobacco

It is situate on a gulf of the Atlantic, 45 miles E. of Comana. Lon. 63. 44 W. Lat. 10. 8 N.

VERISI′MILAR. Verisi′milous. *a.* (*verisimilis*, Latin.) Probable; likely (*White*).

VERISIMI′LITUDE. Verisimi′lity. *s.* (*verisimilitudo*, Lat.) Probability; likelihood; resemblance of truth (*Dryden*).

VE′RITABLE. *a.* (*veritable*, Fr.) True; agreeable to fact (*Brown*).

VE′RITABLY. *ad.* In a true manner.

VE′RITY. *s.* (*verité*, Fr.; *veritas*, Latin.) 1. Truth; consonance to the reality of things (*South*). 2. A true assertion; a true tenet (*Davies*). 3. Moral truth; agreement of the words with the thoughts.

VERJUICE, a liquor obtained from grapes or apples, unfit for wine or cyder; or from sweet ones, whilst yet acid and unripe. Its chief use is in sauces, ragouts, &c. though it is also an ingredient in some medicinal compositions, and is used by the wax-chandlers to purify their wax.

VERMANDOIS, a late territory of France, in Picardy, which, with the late province of Soissonnois, is now included in the department of Aisne. It abounds in corn and excellent flax.

VERMANTON, a town of France, in the department of Yonne, seated on a river, 10 miles S.E. of Auxerre. Lon. 3. 49 E. Lat. 47 40 N.

VERMES. Worms. In zoology, the sixth class of the Linnéan system, thus classically characterised: of slow motion, soft substance, able to increase their bulk, and restore parts which have been destroyed, extremely tenacious of life, and the inhabitants of moist places. Many of them are without distinct head, and most of them without feet; they are principally distinguished by their tentacles or feelers. They are divided into the five orders of intestina, mollusca, testacea, zoophyta, and infusoria; for which see Zoology and Helminthology.

VERMICELLI, a composition of flour, cheese, yolks of eggs, sugar, and saffron, reduced to a paste, and formed into long slender pieces, like worms (whence its name), by forcing it with a piston through a number of little holes.

VERMI′CULAR. *a.* (*vermiculus*, Latin.) Acting like a worm; continued from one part to another of the same body (*Cheyne*).

VERMICULARIA, in botany, a genus of the class cryptogamia, order fungi. Capsule globular, sessile, filled with loose, worm-shaped, seminiferous bodies. Three species, exotics.

To VERMI′CULATE. *v. a.* (*vermiculatus*, Latin.) To inlay; to work in chequer work, or pieces of divers colours (*Bailey*).

VERMICULA′TION. *s.* (from *vermiculate.*) Continuation of motion from one part to another (*Hale*).

VE′RMICULE. *s.* (*vermiculis, vermis*, Lat.) A little grub, worm (*Derham*).

VERMI′CULOUS. *a.* (*vermiculosus*, Lat.) Full of grubs; resembling grubs.

VE′RMIFORM. *a.* (*vermis* and *forma*, Latin.) Having the shape of a worm.

Vermiform process. Protuberantia vermiformis. The substance which unites the two hemispheres of the cerebellum like a ring, forming a process. It is called vermiform, from its resemblance to the contortions of worms.

VERMIFUGES. (*vermifuga*, from *vermis*, a worm, and *fugo*, to drive away.) See Anthelmintics.

VERMILION, a very bright and beautiful red colour, composed of quicksilver and sulphur, in great esteem among the ancients under the name of minium; though what goes by the name of minium amongst us is an oxyd of lead, known also by the name of red-lead. This substance is well known to artists. See Cinnabar, Lead, and Plumbum.

To Vermi′lion. *v. a.* (from the noun.) To colour with vermilion; die red.

VE′RMIN. *s.* (*vermin*, Fr.; *vermis*, Latin.) Any noxious animals. Used commonly as a collective name, for small creatures, such as lice, fleas, &c.

To VE′RMINATE. *v. n.* (from *vermin.*) To breed vermin.

VERMINA′TION. *s.* (from *verminate.*) Generation of vermin (*Derham*).

VE′RMINOUS. *a.* (from *vermin.*) Tending to vermin; disposed to breed vermin (*Harvey*).

VERMI′PAROUS. *a.* (*vermis* and *pario*, Latin.) Producing worms (*Brown*).

VERMONT, one of the united states of America; bounded on the north by Canada, on the east by the river Connecticut, which divides it from New Hampshire, on the south by Massachusets, and on the west by New York. It is 157 miles long and 65 broad, and divided into eleven counties. A chain of high mountains, running north and south, divides the state nearly in the centre, between the river Connecticut and lake Champlain. The natural growth upon this chain is hemlock, pine, spruce, and other evergreens: hence it has always a green appearance, and obtained the descriptive name of Vermont, from the French *verd mont*, green mountain. The country is generally hilly, but not rocky. It is finely watered, the soil is very fertile, and there is not a better climate in the world. The inhabitants have lately been estimated at 100,000. The principal town is Bennington.

VERNA′CULAR. *a.* (*vernaculus*, Latin.) Native; of one's own country (*Addison*).

VE′RNAL. *a.* (*vernus*, Latin.) Belonging to the spring (*Milton*).

VE′RNANT. *s.* (*vernans*, Latin.) Flourishing, as in the spring (*Milton*).

VERNATION. (from *ver*, the spring.) See Foliation, which is the term in Philos. Bot. for which this is substituted in Term. Bot. and Delin. Pl.—In the two latter reclination is omitted, and there is some difference in the explanations.

VERNEUIL, a town of France, in the department of Eure, seated on the Aure, 22 miles S.W. of Evreux, and 65 W. by S. of Paris. Lon. 0. 59 E. Lat. 48. 42 N.

Verneuil, a town of France, in the department of Allier, three miles from the river

Allier, and 15 S. of Moulins. Lon. 3. 25 E. Lat. 46. 20 N.

VERNIER, is a scale, or a division, well adapted for the graduation of mathematical instruments, so called from its inventor Peter Vernier, a gentleman of Franche Comté, who communicated the discovery to the world in a small tract, entitled La Construction, l'Usage, et les Proprietez du Quadrant Nouveau de Mathematique, &c., printed at Brussels in 1631. This was an improvement on the method of division proposed by Jacobus Curtius, printed by Tycho in Clavius's Astrolabe, in 1593. Vernier's method of division, or dividing plate, has been very commonly, though erroneously, called by the name of Nonius; the method of Nonius being very different from that of Vernier, and much less convenient.

When the relative unit of any line is so divided into many small equal parts, those parts may be too numerous to be introduced, or if introduced, they may be too close to one another to be readily counted or estimated; for which reason there have been various methods contrived for estimating the aliquot parts of the small divisions, into which the relative unit of a line may be commodiously divided; and among those methods, Vernier's has been most justly preferred to all others. For the history of this, and other inventions of a similar nature, See Robins's Math. Tracts, vol. ii. p. 265, &c.

Vernier's method is derived from the following principle. If two equal right lines, or circular arcs, A, B, are so divided, that the number of equal divisions in B is one less than the number of equal divisions of A, then will the excess of one division of B above one division of A be compounded of the ratios of one of A to A, and of one of B to B.

For let A contain 11 parts, then one of A to A is as 1 to 11, or $\frac{1}{11}$. Let B contain 10 parts, then one of B to B is as 1 to 10, or $\frac{1}{10}$. Now $\frac{1}{10}-\frac{1}{11}=\frac{11-10}{10\times 11}=\frac{1}{10\times 11}=\frac{1}{10}\times\frac{1}{11}$.

Or if B contains n parts, and A contains $n+1$ parts; then $\frac{1}{n}$ is one part of B, and $\frac{1}{n+1}$ is one part of A. And $\frac{1}{n}-\frac{1}{n+1}=\frac{(n+1)-n}{n\times n+1}=\frac{1}{n}\times\frac{1}{n+1}$.

The most commodious divisions, and their aliquot parts, into which the degrees on the circular limb of an instrument may be supposed to be divided, depend on the radius of that instrument.

Let R be the radius of a circle in inches; and a degree to be divided into n parts, each being $\frac{1}{p}$th part of an inch.

Now the circumference of a circle, in parts of its diameter 2 R inches, is $3{,}1415926\times 2$ R inches,

Then $360° : 3{,}1415926\times 2\,R\ ::\ 1° : \frac{3{,}1415926}{360}\times 2\,R$ inches.

Or, $0{,}01745329\times R$ is the length of one degree in inches.

Or, $0{,}01745329\times R\times p$ is the length of 1°, in pth parts of an inch.

But as every degree contains n times such parts, therefore $n=0{,}01745329\times R\times p$.

The most commodious perceptible division is $\frac{1}{8}$ or $\frac{1}{10}$ of an inch.

Example. Suppose an instrument of 30 inches radius, into how many convenient parts may each degree be divided? how many of these parts are to go to the breadth of the vernier, and to what parts of a degree may an observation be made by that instrument?

Now $0{,}01745\times R=0{,}5236$ inches, the length of each degree: and if p be supposed about $\frac{1}{8}$ of an inch for one division; then $0{,}5236\times p=4{,}188$ shows the number of such parts in a degree. But as this number must be an integer, let it be 4, each being 15′: and let the breadth of the vernier contain 31 of those parts, or 7¾°, and be divided into 30 parts.

Here $n=\frac{1}{4}$; $m=\frac{1}{30}$; then $\frac{1}{4}\times\frac{1}{30}=\frac{1}{120}$ of a degree, or 30′, which is the least part of a degree that instrument can show.

If $n=\frac{1}{5}$, and $m=\frac{1}{36}$; then $\frac{1}{5}\times\frac{1}{36}=\frac{60}{5\times 36}$ of a minute, or 20″.

The following table, taken as examples in the instruments commonly made from 3 inches to 8 feet radius, shows the divisions of the limb to nearest tenths of inches, so as to be an aliquot of 60's, and what parts of a degree may be estimated by the vernier, it being divided into such equal parts, and containing such degrees as their columns show.

Rad. inches.	Part in a deg.	Parts in vernier	Breadth of vernier.	Parts observed.	
3	1	15	15¼	4′	0″
6	1	20	20¼	3	0
9	2	20	10¼	1	30
12	2	24	12¾	1	15
15	3	20	6¾	1	0
18	3	30	10¼	0	40
21	4	30	7¼	0	30
24	4	36	9¾	0	25
30	5	30	7½	0	20
36	6	30	5¼	0	20
42	8	30	3⅞	0	15
48	9	40	4$\frac{5}{9}$	0	10
60	10	36	3$\frac{7}{10}$	0	10
72	12	30	2$\frac{7}{12}$	0	10
84	15	40	2⅔	0	6
96	15	60	4	0	4

By altering the number of divisions, either in the degrees or in the vernier, or in both, an angle can be observed to a different degree of accuracy. Thus, to a radius of 30 inches if a degree be divided into 12 parts, each being five minutes, and the breadth of the vernier be 21 such parts, or $1\frac{3}{4}^\circ$, and divided into 20 parts, then $\frac{1}{12} \times \frac{1}{20} = \frac{1^\circ}{240} = 15''$: or taking the breadth of the vernier $2\frac{7}{12}^\circ$, and divided into 30 parts; then $\frac{1}{12} \times \frac{1}{30} = \frac{1^\circ}{360}$, or $10''$: Or $\frac{1}{12} \times \frac{1}{5} = \frac{1^\circ}{600} = 6''$; where the breadth of the vernier is $4\frac{1}{4}^\circ$.

VERNI'LITY. *s.* (*verna*, Latin.) Servile carriage; the submissive fawning behaviour of a slave (*Bailey*).

VERNON, a town of France, in the department of Eure, with an ancient castle, and a fortress at the end of the bridge over the Seine, 27 miles S.E. of Rouen, and 42 N.W. of Paris. Lon. 1. 42 E. Lat. 49. 6 N.

VERNONIA, in botany, a genus of the class syngenesia, order polygamia æqualis. Receptacle naked; calyx ovate, imbricate; down double; the outer chaffy, inner capillary. Four species; natives of the West Indies and America.

VEROLI, an ancient and populous town of Italy, in Campagna di Roma, with a bishop's see. It is seated on the Cosa, at the foot of the Apennines, 45 miles S.E. of Rome. Lon. 13. 15 E. Lat. 41. 28 N.

VERONA, a famous city of Italy, capital of the Veronese, with a bishop's see, three forts, and an academy. It is surrounded by thick walls, deep ditches, and good ramparts. The streets are neither clean nor straight; but there is a handsome place called the Piazza d'Armi, in which is a marble statue, representing the republic of Venice. The most remarkable structure is the amphitheatre built by the Romans, in which there are 44 rows of benches of white marble, which will conveniently hold 25,000 persons. Verona is the birthplace of Pliny the naturalist, and in the cathedral is a magnificent tomb of pope Lucius. The river Adige divides it into two parts, which communicate by two handsome bridges. Verona was taken by the French, in July 1796; but retaken by the Austrians in June 1799. It is 17 miles N.E. of Mantua, and 62 S.W. of Venice. Lon. 11. 24 E. Lat. 45. 26 N.

VERONESE, a province of Italy, in the territory of Venice, bounded on the N. by the Trentino, on the E. by the Vicentino and Paduano, on the S. by the Mantuan, and on the W. by the Bresciano. It is 35 miles long and 27 broad, and one of the most fertile countries in Italy, abounding in corn, wine, fruits, and cattle.

VERONICA. Speedwell. In botany, a genus of the class diandria, order monogynia. Corol wheel-shaped, four-cleft, the lowest division narrower; capsule superior, two-celled. Fifty seven species; scattered over Europe, a few over New Zealand; seventeen found wild in the woods, pastures, marshes, ditches, or on the mountains of our own country. They are thus subdivided.

A. Flowers spiked.
B. Flowers in a racemed corymb.
C. Peduncles with a single flower.

The following are cultivated.

1. V. Sibirica. Siberian speedwell.
2. V. Virginica. Virginian speedwell.
3. V. spuria. Bastard speedwell.
4. V. maritima. Sea speedwell.
5. V. longifolia. Long-leaved speedwell.
6. V. hybrida. Welsh speedwell.
7. V. incisa. Cut-leaved speedwell.
8. V. decussata. Cross-leaved speedwell.
9. V. officinalis. Officinal speedwell.

The last has been long known in medicine. It is found not unfrequently on dry barren grounds and heaths, as that of Hampstead; flowering in June and July. The leaves have a weak not disagreeable smell, which on drying is dissipated, and which they give over in distillation with water, but without yielding any separable oil. To the taste they are bitterish and roughish; an extract made from them by rectified spirit is moderately bitter and adstringent. This plant, a century ago, was much recommended, especially in Germany, as a substitute for tea; and the French still distinguish it by the name of Thé d'Europe. But though this European tea has a roughness and a slight bitterness, which is not ungrateful to the taste, yet the qualities are so unlike those which we discover in the foreign tea, that the extremely high price of the latter, at that time, must have been the chief reason for causing a contrary opinion, and of reconciling Europeans to a substitute so imperfect as the leaves of veronica. As a medicine also this plant has had a considerable share of fame: Francus and Hoffmann ascribe to it numerous virtues; the former calling it polychresta herba veronica. The disorders in which it has been esteemed most useful are those of the lungs, as coughs, asthmas, consumptions, &c. in which it is said not only to prove expectorant, but by its extraordinary vulnerary power to heal internal ulcers. Its use has likewise been recommended by several authors in various other complaints requiring medicines of very different characters; but if we judge of the utility of the veronica by its sensible qualities, it is only to be recognised as an adstringent; and not sufficiently powerful as such to produce any considerable effect, and is therefore now disregarded by medical practitioners.

VERRES (C.), a Roman who governed the province of Sicily as pretor. The oppression and rapine of which he was guilty while in office so offended the Sicilians, that they accused him before the Roman senate. Cicero undertook the cause of the Sicilians, and pronounced against Verres those celebrated orations still extant. Verres, despairing of the success of his defence, retired to one of the provinces. He was at last killed by the soldiers of Antony the triumvir, about 26 years after his voluntary exile from the capital.

VERRUCÆ. (*verruca*, a *verrendo*, a *verrunco*, to change for the better.) Warts. A genus of disease in the class locales and order tumores of Cullen.

VERRUCOSE CAPSULE, in botany, a warted capsule. Having little knobs or warts on the surface. As in euphorbia verrucosa.—Verrucose leaf. A warted leaf. Tectum punctis carnosis. Covered with fleshy points. The same with papillose or papillous.

VERSABI'LITY. VE'RSABLENESS. *s.* (*versabilis*, Latin.) Aptness to be turned or wound any way.

VERSAILLES, a town of France, in the department of Seine and Oise. It contains 60,000 inhabitants, and, since the revolution, has been created a bishop's see. In the reign of Lewis XIII. it was only a small village, and here this prince built a hunting seat in 1630. Lewis XIV. built a magnificent palace here, which was the usual residence of the kings of France, till 1789, when Lewis XVI. and his family were removed from it to Paris. The buildings and gardens were adorned with a vast number of statutes, by the greatest masters, and the water-works were magnificent. The gardens, with the park, are five miles in circumference, and surrounded by walls. Versailles is 10 miles W.S.W. of Paris. Lon. 2. 12 E. Lat. 48. 48 N.

VE'RSAL. *a.* (a cant word for *universal.*) Total; whole (*Hudibras*).

VE'RSATILE. *a.* (*versatilis*, Latin.) 1. That may be turned round (*Harte*). 2. Changeable; variable (*Glanville*). 3. Easily applied to a new task.

VE'RSATILENESS. VERSATI'LITY. *s.* (from *versatile.*) The quality of being versatile.

VERSE. *s.* (*vers*, French; *versus*, Latin.) 1. A line consisting of a certain succession of sounds, and number of syllables (*Shakspeare*). 2. (*verset*, French.) A section or paragraph of a book (*Burnet*). 3. Poetry; lays; metrical language (*Prior*). 4. A piece of poetry (*Pope*).

To VERSE. *v. a.* (from the noun.) To tell in verse; to relate poetically (*Shakspeare*).

To be VERSED. *v. n.* (*versor*, Latin.) To be skilled in; to be acquainted with (*Dryden*).

VERSED-SINE, of an arch, is the part of the diameter intercepted between the sine and the commencement of the arc; and it is equal to the difference between the radius and the cosine. See SINE (Versed).

VE'RSEMAN. *s.* (*verse* and *man.*) A poet; a writer in verse (*Prior*).

VE'RSICLE. *s.* (*versiculus*, Lat.) A little verse.

VERSIFICA'TION. *s.* (*versification*, Fr. from *versify.*) The art or practice of making verses (*Granville*).

VERSIFICA'TOR. VERSI'FIER. *s.* (*versificateur*, Fr. *versificator*, Lat.) A versifier; a maker of verses, with or without the spirit of poetry (*Watts*).

To VE'RSIFY. *v. n.* (*versifier*, Fr. *versificor*, Lat.) To make verses (*Dryden*).

To VE'RSIFY. *v. a.* To relate in verse (*Dan.*).

VE'RSION. *s.* (*version*, Fr. *versio*, Latin.) 1. Change; transformation (*Bacon*). 2. Change of direction (*Bacon*). 3. Translation (*Dryden*). 4. The act of translating.

VERT, a term in the forest laws including plants growing within a forest or its purlieus, bearing green leaves, and of sufficient height and magnitude to cover or form a covert for a deer; overt-vert implies trees of a higher kind; nether-vert, shrubs, or plants of a lower stature.

VERTEBRÆ. (*vertebra*, from *verto*, to turn.) The spine is a long bony column, which extends from the head to the lower part of the trunk, and is composed of a number of irregular bones which are called vertebræ.

The spine may be considered as being composed of two irregular pyramids, which are united to each other in that part of the loins where the last of the lumbar vertebræ is united to the os sacrum.

The vertebræ, which form the upper and longest pyramid, are called true vertebræ; and those which compose the lower pyramid, or the os sacrum and the coccyx, are termed false vertebræ, because they do not in every thing resemble the others; and particularly because, in the adult state, they become perfectly immoveable, whilst the upper ones continue to be capable of motion. For it is upon the bones of the spine that the body turns, and their name has its derivation from the Latin verb *verto*, as observed above.

The true vertebræ, from their situation with respect to the neck, back, and loins, are divided into three classes of cervical, dorsal, and lumbar vertebræ. We shall here consider the general structure of all these; referring for a description of the number, &c. in each class to our article ANATOMY.

In each of the vertebræ, as in other bones, we may remark the body of the bone, its processes, and cavities. The body may be compared to part of a cylinder cut off transversely; convex before, and concave behind, where it makes part of the cavity of the spine.

Each vertebra has commonly seven processes. The first of these is the spinous process, which is placed at the back part of the vertebra, and gives the name of spine to the whole of this bony canal. Two others are called transverse processes, from their situation with respect to the spine, and are placed on each side of the spinous process. The four others, which are called oblique processes, are much smaller than the other three. There are two of these on the upper and two on the lower part of each vertebra, rising from near the basis of the transverse processes. They are sometimes called articular processes, because they are articulated with each other; that is, the two superior processes of one vertebra are articulated with the two inferior processes of the vertebra above it; and they are called oblique processes, from their situation with respect to the processes with which they are articulated. These oblique processes are articulated to each other by a species of ginglimus, and each process is covered at its articulation with cartilage.

There is in every vertebra, between its body and apophyses, a foramen, large enough to admit a finger. These foramina correspond with each other through all the vertebræ, and form a long bony conduit, for the lodgment of the spinal marrow.

Besides this great hole, there are four notches on each side of every vertebra, between the oblique processes and the body of the vertebra. Two of these notches are at the upper, and two at the lower part of the bone. Each of the inferior notches, meeting with one of the superior notches of the vertebra below it, forms a foramen; whilst the superior notches do the same with the inferior notches of the vertebra above it. These four foramina form passages for blood-vessels, and for the nerves that pass out of the spine.

The vertebræ are united together by means of a substance, compressible like cork, which forms a kind of partition between the several vertebræ. This intervertebral substance seems, in the fétus, to approach nearly to the nature of ligaments: in the adult it has a greater resemblance to cartilage. When cut horizontally, it appears to consist of concentrical curved fibres: externally, it is firmest and hardest; internally, it becomes thinner and softer, till at length, in the centre, we find it in the form of a mucous substance, which facilitates the motions of the spine.

Genga, an Italian anatomist, long ago observed, that the change which takes place in these intervertebral cartilages, (as they are usually called) in advanced life, occasions the decrease in stature, and the stooping forwards, which are usually to be observed in old people. The cartilages then become shrivelled, and consequently lose, in a great measure, their elasticity. But, besides this gradual effect of old age, these cartilages are subject to a temporary diminution, from the weight of the body in an erect posture, so that people who have been long standing, or have carried a considerable weight, are found to be shorter than when they have been long in bed. Hence we are taller in the morning than at night. This fact, though seemingly obvious, was not ascertained till of late years. The difference in such cases depends on the age and size of the subject; in tall, young people, it will be nearly an inch; but in older, or shorter persons, it will be less considerable.

Besides the connexion of the several vertebræ, by means of these cartilages, there are likewise many strong ligaments, which unite the bones of the spine to each other. Some of these ligaments are external, and others internal. Among the external ligaments, we observe one which is common to all the vertebræ, extending, in a longitudinal direction, from the fore part of the body of the second vertebra of the neck, over all the other vertebræ, and becoming broader as it descends towards the os sacrum, where it becomes thinner, and gradually disappears. This external longitudinal ligament, if we may so call it, is strengthened by other shorter ligamentous fibres, which pass from one vertebra to another, throughout the whole spine. The internal ligament, the fibres of which, like the external one, are spread in a longitudinal direction, is extended over the back part of the bodies of the vertebræ, where they help to form the cavity of the spine, and reaches from the foramen magnum of the occipital bone to the os sacrum.

We may venture to remark, that all the vertebræ diminish in density and firmness of texture, in proportion as they increase in size, so that the lower vertebræ, though larger, are not so heavy in proportion as those above them. In consequence of this mode of structure, the size of the vertebræ is increased without adding to their weight; and this is an object of no little importance, in a part of the body, which, besides flexibility and suppleness, seems to require lightness as one of its essential properties.

In the fétus, at the ordinary time of birth, each vertebra is found to be composed of three bony pieces, connected by cartilages which afterwards ossify. One of these pieces is the body of the bone; the other two are the posterior and lateral portions, which form the foramen for the medulla spinalis. The oblique processes are at that time complete, and the transverse processes beginning to be formed; but the spinous processes are totally wanting. See ANATOMY.

Before we close the article, however, we shall briefly notice the uses of the spine. We find the spinal marrow lodged in this bony canal, secure from external injury. It defends the thoracic and abdominal viscera, and forms a pillar which supports the head, and gives a general firmness to the whole trunk.

To give it a firm basis, we find the bodies of the vertebra gradually increasing in breadth as they descend; and to fit it for a variety of motion, it is composed of a great number of joints, with an intermediate elastic substance, so that to great firmness there is added a perfect flexibility.

The lowermost and largest vertebræ are not so heavy in proportion as those above them; their bodies being more spongy, excepting at their circumference, where they are more immediately exposed to pressure; so that nature seems every where endeavouring to relieve us of an unnecessary weight of bone. But behind, where the spinal marrow is more exposed to injury, we find the processes composed of very hard bone; and the spinous processes are in general placed over each other in a slanting direction, so that a pointed instrument cannot easily get between them, excepting in the neck, where they are almost perpendicular and leave a greater space between them. Hence, in some countries, it is usual to kill cattle by thrusting a pointed instrument between the occiput and the atlas, or between the atlas and the second vertebra. Besides these uses of the vertebræ in defending the spinal marrow, and in articulating the several vertebræ, as is the case with the oblique processes, we shall find that they all serve to form a greater surface for the lodgment of muscles, and to enable the latter to act more powerfully on the trunk, by affording them a lever of considerable length.

In the neck, we see the spine projecting somewhat forwards, to support the head, which, without this assistance, would require a greater number of muscles. Through the whole length of the thorax it is carried in a curved direction backwards, and thus adds considerably to the cavity of the chest, and consequently affords more room to the lungs, heart, and large blood-vessels. In the loins the spine again projects forwards, in a direction with the centre of gravity, by which means the body is easily kept in an erect posture; for otherwise we should be liable to fall forwards. But, at its inferior part, it again recedes backwards, and helps to form a cavity called the pelvis, in which the urinary bladder, intestinum rectum, and other viscera, are placed.

In a part of the body that is composed of so great a number of bones, and constructed for such a variety of motion, as the spine is, luxation is more to be expected than fracture; and this is very wisely guarded against in every direction, by the many processes that are to be found in each vertebra, and by the cartilages, ligaments, and other means of connexion, which we have described as uniting them together.

VERTEBRAL ARTERY. Arteria vertebralis. A branch of the subclavian, proceeding through the vertebræ to within the cranium, where with its fellow, it forms the basilary artery, the internal auditory, and the posterior artery of the dura mater.

VERTEX, in anatomy, the crown of the head.

Vertex of an angle, in geometry, is the angular point, or the point where the legs or sides of the angle meet.

Vertex of a figure, is the uppermost point, or the vertex of the angle opposite to the base.

Vertex of a curve, is the extremity of the axis or diameter; or it is the point where the diameter meets the curve; which is also the vertex of the diameter.

Vertex of a glass, in optics, the same as its pole.

Vertex is also used, in astronomy, for the point of the heavens vertically or perpendicularly over our heads, also called the zenith.

Vertex, denotes farther, the top of any thing.

VERTICAL, something relating to the vertex or highest point. As,

Vertical point, in astronomy, is the same with vertex, or zenith.—Hence a star is said to be vertical, when it happens to be in that point which is perpendicularly over any place.

Vertical circle, is a great circle of the sphere, passing through the zenith and nadir of a place.—The vertical circles are also called azimuths. The meridian of any place is a vertical circle, viz. that particular one which passes through the north or south point of the horizon.—All the vertical circles intersect one another in the zenith and nadir.

The use of the vertical circles is to estimate or measure the height of the stars, &c. and their distances from the zenith, which is reckoned on these circles; and to find their eastern and western amplitude, by observing how many degrees the vertical, in which the star rises or sets, is distant from the meridian.

Vertical (Prime), is that vertical circle, or azimuth, which passes through the poles of the meridian; or which is perpendicular to the meridian, and passes through the equinoctial points.

Verticals (Prime), in dialling. See Prime verticals.

Vertical of the sun, is the vertical which passes through the centre of the sun at any moment of time.—Its use is, in dialling, to find the declination of the plane on which the dial is to be drawn, which is done by observing how many degrees that vertical is distant from the meridian, after marking the point or line of the shadow upon the plane at any times.

Vertical dial. See Dial (Vertical).

Vertical line, in dialling, is a line in any plane perpendicular to the horizon.—This is best found and drawn on an erect and reclining plane, by steadily holding up a string and plummet, and then marking two points of the shadow of the thread on the plane, a good distance from one another; and drawing a line through these marks.

Vertical line, in conics, is a line drawn on the vertical plane, and through the vertex of the cone.

Vertical line, in perspective. See Line (Vertical).

Vertical plane, in conics, is a plane passing through the vertex of a cone, and parallel to any conic section.

Vertical plane, in perspective. See Plane and Perspective.

VERTICALIA OSSA. See Parietal bones.

VERTICA'LITY. *s.* (from *vertical.*) The state of being in the zenith (*Brown*).

VE'RTICALLY. *ad.* (from *vertical.*) In the zenith (*Brown*).

VERTICIL, in botany. (*verticulus*, à *verto*. Instrumentum quod fuso adhibetur, ut facilius vertatur. *Plinius*.) Whirles, as spelt by Ray. It is commonly written whorl; but whirl seems to be the proper orthography, since it must be derived from the verb to whirl, which signifies to turn round rapidly.

Linnéus puts this term for a sort of inflorescence made up of many subsessile flowers surrounding the stem in a ring. Fit ex floribus numerosis subsessilibus, caulem annulatim ambientibus.—As in mentha pulegium, marrubium, &c.

A verticil, whorl or whirl, may be

1. Sessile or peduncled.

2 Naked; that is, without involucre, bracte or bristle. Bracted, or involucred.

3. Crowded. Distant, or remote.—Hence

VERTICILLATE FLOWERS. Verticillati flores; or flowers growing in a whorl; or round the stem in rings one above another at each joint.—It is applied to peduncles; and sometimes to branches and leaves.—Plants bearing flowers in this manner are styled

VERTICILLATÆ, in botany. Verticillate plants. These are included in the fifty-eighth order of Linnéus's Fragments; and the forty-second of his Natural Orders. In the Artificial System, they form the order gymnospermia of the class didynamia. They also constitute one of Ray's classes.

VERTI′GINOUS. *a.* (*vertiginosus*, Lat.) 1. Turning round; rotatory (*Bentley*). 2. Giddy (*Woodward*).

VE′RTIGO. *s.* (Lat.) A giddiness; a sense of turning in the head (*Arbuthnot*).

VERTIGO, in medicine. Giddiness. Mostly symptomatic.

VERTUMNUS, in mythology, a deity among the Romans, who presided over the spring and orchards. He is generally represented as a young man crowned with flowers, covered up to the waist, and holding in his right hand fruit, and a crown of plenty in his left.

VERTUS, a town of France, in the department of Marne, seated in a plain, at the foot of a mountain, on which are vineyards, producing very good wines, 17 miles S.W. of Chalons, and 78 N.E. of Paris. Lon. 4. 2 E. Lat. 48. 53 N.

VERVAIN, in botany. See VERBENA.

VERVAIN MALLOW, in botany. See MALVA.

VE′RVELES. *s.* (*vervele*, Fr.) Labels tied to a hawk (*Ainsworth*).

VERVINS, a town of France, in the department of Aisne, famous for a treaty, in 1598, between Henry IV. of France and Philip II. of Spain. It is seated on the Serre, 40 miles N.E. of Soissons.

VERUS (Lucius Ceionius Commodus), a Roman emperor, son of Ælius and Domitia Lucilla, was adopted in the 7th year of his age by M. Aurelius, at the request of Adrian, and he married Lucilia the daughter of his adopted father, who also took him as his colleague on the throne. He was sent by M. Aurelius to oppose the barbarians in the east, where he obtained a complete victory over the Parthians. He soon after marched with his imperial colleague against the Marcomanni in Germany, and died in that expedition of an apoplexy, in the 39th year of his age, after a reign of eight years and some months. Verus has been greatly censured for his débaucheries.

VE′RY. *a.* (*veray*, or *vrai*, Fr.) 1. True; real (*Dryden*). 2. Having any qualities, commonly bad, in an eminent degree: *a very villain* (*Davies*). 3. To note things emphatically, or eminently: *the very bottom* (*Shakspeare*). 4. Same: *the very man* (*Sprat*).

VE′RY. *ad.* In a great degree; in an eminent degree (*Addison*)

VERZUOLO, a town of Piedmont, with a castle. It is surrounded by an ancient wall, flanked with towers, and seated in a very fruitful soil, near the Vratia, three miles S. of Saluzzo.

VESANIÆ. The fourth order in the class neuroses of Cullen's nosological arrangement; comprehending diseases in which the judgment is impaired, without either coma or pyrexia.

VESICA. (a diminutive of *vas*, a vessel.) A bladder.

VESICA FELLIS. The gall-bladder. See GALL-BLADDER.

VESICA URINARIA. The urinary bladder. See URINARY BLADDER.

To VE′SICATE. *v. a.* (*vesica*, Latin.) To blister (*Wiseman*).

VESICA′TION. *s.* (from *vesicate.*) Blistering; separation of the cuticle (*Wiseman*).

VESICATORIES. (*vesicatoria*, from *vesica*, a bladder; because they raise a bladder.) See EPISPASTICS.

VESICLE. (*bulla.*) An elevation of the cuticle, of a large size, irregularly circumscribed, and containing a transparent watery fluid. Vesicles with a dark red or livid coloured base are usually denominated phlyctænæ.

VESICULÆ PULMONALES. (*vesicula*, a diminutive of *vesica*, a bladder.) The air cells which compose the greatest part of the lungs, and are situated at the termination of the bronchia.

VESICULÆ SEMINALES. Two membranous receptacles, situated on the back part of the bladder above its neck. Its excretory ducts are called ejaculatory ducts. They proceed to the urethra, into which they open by a peculiar orifice at the top of the verumontanum. They have vessels and nerves from the neighbouring parts, and are well supplied with absorbent vessels, which proceed to the lymphatic glands about the loins. The use of the vesiculæ seminalis is not exactly known.

It is proved satisfactorily by J. Hunter that they are not receptacles or reservoirs of semen. They however secrete a mucus of their own, apparently of use in coition; but are wanting in many animals. See Observations on the Animal Economy, vol. i. p. 31.

VESI′CULAR. *a.* (from *vesicula*, Latin.) Hollow; full of small interstices (*Cheyne*).

VESICULAR FEVER. (See PEMPHIGUS.) This disease seems to consist in eruptions dispersed over different parts of the body (internal as well as external), which gradually rise up into vesicles of about the size of a large nut, containing a yellow serous fluid, that is in some instances of an ichorous nature, and which again disappear in the course of three or four days. By some authors it is described as being attended both by fever and contagion, and by others, as being accompanied by neither. It is therefore supposed that there are two species of it, the chronic, and the acute. The disease is, however, of very rare occurrence.

By the generality of the practitioners who have favoured us with their opinions, the principal of whom is Dr. Dickson, it has not been considered as contagious. This gentleman saw six cases of the complaint, in none of which it was received by contagion, nor communicated to those who attended the sick.

Dr. Cullen informs us that the blisters are filled with a thin ichor, which is discharged, not absorbed, as mentioned by Dr. Dickson; but during his whole practice, it appears, that he met only with a single case of pemphigus.

Some slight degree of lassitude, sickness, and head-ach having prevailed for a day or two, small vesicles of about the size of a pea then make their appearance over different parts of the body, and not unfrequently in the mouth, and other parts of the alimentary canal, and these gradually increase till they become as large as a nut or almond. Sometimes they are so numerous as to run into each other. The pulse during this time is small and frequent, and the patient is sensible of a considerable degree of debility.

If the vesicles be not broken, they fill with a yellowish serum, which is again absorbed into the system in the course of three or four days. This appears to be the most favourable termination; as they have been known to leave troublesome ulcers behind them when they broke.

Pemphigus resembles the small-pox in frequently leaving pits in the skin, and the parts, which the vesicle occupied, remaining of a dark colour for a considerable time afterwards. In the third volume of Medical Facts and Observations, Dr. Winterbottom takes particular notice of this occurrence.

We are to be influenced in our prognosis by the seat and appearance of the vesicles. When they only appear on external parts, and are not numerous, they demand little attention; when they are numerous, when they attack the alimentary canal, and are attended with a small hard pulse, the danger is considerable. The danger is likewise very great, when the ulcers, left by vesicles, shew a tendency to grangrene by coming livid, which seldom happens, however, unless a fever of the true typhoid kind has accompanied it.

On taking a comprehensive survey of what has been recorded by recent writers on the subject, it must, we think, be concluded that pemphigus is an affection merely sporadic, and not of a contagious nature, and that the symptoms accompanying one or other instances of this affection are those which attend febrile diseases, whether inflammatory or putrid. The most important distinctions necessary to be ascertained appear therefore to be, 1st. Whether the fever be of an inflammatory nature, and accompanied with a strong and increased action of the vascular system. 2d. Whether the fever have a tendency to the typhoid type, be marked by great debility, and symptoms which denote a tendency of the fluids to putrefaction. It will be obvious that in the first case, evacuation and other antiphlogistic remedies will be proper; and that in the second it will, on the contrary, be necessary to shun all evacuations, and to employ those remedies alone which support the strength, and give tone and vigour to the system.

VESOUL, a town of France, capital of the department of Upper Saone. In its vicinity is a medicinal spring. It is seated at the foot of a mountain, near the river Durgeon, 24 miles N. of Besançon, and 106 E.S.E. of Troyes. Lon. 6. 8 E. Lat. 47. 36 N.

VESPA. Wasp. In zoology, a genus of the class insecta, order hymenoptera. Mouth horny, with a compressed jaw; feelers four, equal, filiform; antennas filiform, the first joint longer, and cylindrical; eyes lunar; body glabrous; upper wings folded, in each sex; sting pungent, concealed in the abdomen. Two hundred and twelve species, scattered over the globe, eight common to our own country.

They are thus divided and subdivided.

A. Tongue simple, or tongueless.
α. Lip furnished with a bristle on each side.
β. Lip ovate, as long as the jaws: the mellinus of Fabricius.
γ. Lip compressed, rounded, longer than the jaw: the philanthus of Fabricius.
δ. Lip short, horny: the crabro of Fabricius.
B. Tongue bifid, retractile: the masaris of Fabricius.
C. Tongue inflected, five-cleft: the bembex of Fabricius.

A specimen or two is all for which we can find space.

1. V. crabro. Hornet. Thorax black, the fore-part rufous, immaculate; incisures of the abdomen with a double contiguous black dot. Inhabits Europe, and makes its nest in the trunks of hollow trees, or in the timber-work of lofts: the sting of the female is extremely painful; the male in all the species is stingless.

The hornet is not found in Scotland, though common in England. The antennas, head, and legs, are of a brown or chesnut colour: the abdomen is of a fine orange brown; but on the extension of the annuli, it discovers on each side a line of black; the wings are of the colour of amber; and the animal, for size, merits the first rank among the vespæ.

2. V. vulgaris. Common wasp. Thorax black, surrounded on the anterior part by a yellow line; abdomen golden yellow, with triangular spots down the back part, and black ones on each side.

The wasps in general seem to fill up a middle rank between the ichneumons and the bees; like the former, they are rapacious and carnivorous, and, like the latter, construct hives, and sometimes feed on the produce of flowers; they devour fruit, butcher meat, and carry on continual hostilities against almost every species of fly: they are at once the rivals and the enemies of the common bee; many of which annually perish by their attacks, while they make a prey of their honey.

Almost every person must have seen the establishment made under ground by the common wasp. It is a kind of subterraneous city, which at certain seasons of the year contains many thousands of inhabitants, and is constructed nearly with the same ingenuity and elegance as that of the honey bee. Like it, it is internally formed with combs consisting of a number of hexagonal cells, all enveloped under one common covering, and constructed with great art. In this particular they excel the common bee, which contents itself with the cover afforded by the hive, or with the trunk of a rotten tree, in their wild state.

Though the wasps generally make choice of some large hole under ground for the construction of their nest, they have nevertheless much labour to undergo in removing protuberances, and carrying away earth, till it is brought to that spherical figure which suits their purposes. This work completed, they next construct that paper-like covering with which the whole hive is lined. The combs in which the cells are lodged next claim their attention. These are ranged horizontally in different stories, sometimes twelve or fifteen above each other, all supported by colonnades, between which the whole citizens of this subterraneous commonwealth are seen at times to walk, like men in the streets of a town. The cells of the wasps are not constructed with that geometrical skill which has been so often admired in those of the bee; but they are not on that account the less adapted to the purposes they are destined to serve. Each comb has only a single range of cells, with their mouths opening below. They are intended, not for the reception of honey, but for the habitation of the young, which are fed twice or thrice a-day, by morsels carried in by the parents. For the more commodious reception of its food, each of the larves has its head turned downward opposite to the mouth of its cell, ready to receive its meal when offered.

There are, however, many varieties in the construction of wasp hives, all suited to the views of the different species that inhabit them. Some have only a single row of cells, placed vertically, like those of the bee, the mouths facing the sun: the reason of this variety seems to be, that some kinds require the heat of the sun to hatch their eggs; an advantage which could not be obtained were there more rows of cells, or were they placed in a different manner.

As in a hive of bees, so in that of wasps, there are three different kinds of animals: at certain seasons, it contains only a single female, and a number of what used to be called neuters or mules, and were supposed to be of no sex, though it is probable they are females with undeveloped female organs; at other times it contains some hundreds of females, and a still greater number of males. The former are of a size so superior to the mules, that one weighs against eight; even the male wasp is not more than half the weight of the female.

The condition of the female wasp differs widely from that of the female bee. The latter, when she leads from the parent hive a young colony, and founds a new empire, is essentially a queen; for she is more implicitly obeyed than the best of monarchs, by the most loyal of his lieges. The female wasp, as her station is more laborious, so her genius seems more enterprising. Unaided by any of her kind, she lays, in the beginning of every season, the foundation of a new edifice, which is destined to be the birthplace of many thousands of her species. She constructs the first cells, to which she commits the earliest of her eggs, which in time become labourers, the most active and enterprising of the whole race; and by these she is assisted in completing the rest of the work.

The male wasps are not so slothful as the male bee; they discharge several duties in the interior parts of the hive; but in the art of building, either the cells or the external covering, they are altogether unskilled. This falls to be executed by the labourers, who carry it on with amazing dispatch. They collect together the small fibres of half rotten wood, which they moisten with a glutinous substance, and make up into that paper of which all their work is formed.

The aerial wasp constructs small nests of about the size of an orange, which it attaches to the branch of a tree. This compact little edifice is exposed to the weather, but is rendered impenetrable to rain, by a number of leaves which are placed round it, exactly resembling an inverted rose. A particular species in the neighbourhood of Cayenne constructs a large oblong box, about twelve or fifteen inches long, of fine parchment, which is also pendent from the branch of a tree; there the combs fabricated of the same substance are ranged horizontally, in different stories, one above the other, each having a round hole in the centre, by which the wasps are enabled to ascend or descend to different flats of their building.

While these operations are carrying on by the joint labours of the hive, the mother wasp continues to lay till she has produced fifteen or sixteen thousand labourers, and about five or six hundred perfect males and females: the commonwealth day by day increases in numbers, and enjoys peace. Towards the month of October provisions begin to grow scarce, and a new scence ensues. This hitherto amicable tribe seems then fired with mutual rage; and the whole edifice presents one scene of massacre. The labourers and males tear from their cradles the eggs, the larves, and new born insects, with undistinguishing fury. They next fight one another. Care for the state, solicitude for posterity, or love to their native place, now no longer exist; the whole commonwealth is shaken to the foundation. Rains and frosts ensue; the citizens are seized with disease and languor; and happily for the other insects, and the fruit gardens, almost the whole die. Some few females escape the disasters of civil war, and the severity of winter, and in the ensuing spring become the founders of new empires, which are again to be overturned in like manner.

In describing the economy of this tribe, we have not allowed ourselves to adopt the term neuters. The general resemblance of structure which it bears to the bee tribe is so close, that there can be little doubt that such an anomaly no more exists among the former than among the latter: and we trust that the indefatigable and very accurate Huber, to whom we are so much indebted for a real knowledge of the structure and economy of the bee, will yet pursue his investigations into the families of the vespa and formica; from both which it is probable he would as effectually remove the anomaly of a neuter gender as he has done from that of the apis. See the article Bee in this work. See, also, Nat. Hist. Pl. CLXXVIII.

VESPASIAN (Titus Flavius), a Roman emperor descended from an obscure family at Riete, and formerly a horse-doctor. He was honoured with the consulship, by his own private merit and his public services. He accompanied Nero into Greece, and was afterwards sent to carry on a war against the Jews. His operations were crowned with success; many of the cities of Palestine surrendered, and Vespasian began the siege of Jerusalem. This was, however, achieved by the hands of his son Titus, and the death of Vitellius and the affection of his soldiers hastened his rise, and he was proclaimed emperor at Alexandria. In the beginning of his reign Vespasian attempted to reform the manners of the Romans. He repaired the public buildings, embellished the city, and made the great roads more spacious and convenient. After he had reigned with great popularity for 10 years, Vespasian died with a pain in his bowels, A. D. 79, in the 70th year of his age. He was the first Roman emperor that died a natural death, and he was also the first who was succeeded by his own son on the throne. Vespasian has been admired for his virtues. To men of learning and merit, Vespasian was very liberal: one hundred thousand sesterces were annually paid from the public treasury to the different professors that were appointed to encourage and promote the arts and sciences.

VE'SPER. *s.* (Latin.) The evening star; the evening (*Shakspeare*).

Ve'spers. *s.* (without the singular, from *vesperus*, Latin.) The evening service of the Romish church.

VESPERTILIO. Bat. Vampyre. In zoology, a genus of the class mammalia, order primates. Teeth all erect, acuminate, approximate; fore-feet palmate, formed for flying; a membrane surrounding the body. Twenty-five species, thus subdivided.

A. Fore-teeth in each jaw four.
B. Fore-teeth, upper four, lower six.
C. Fore-teeth, upper four, lower eight.
D. Fore-teeth, upper two, lower six.
E. Fore-teeth, upper two, lower four.
F. Fore-teeth, upper two, lower none
G. Fore-teeth, upper none, lower four.
H. Toothless in both jaws.
I. Number and order of teeth unknown.

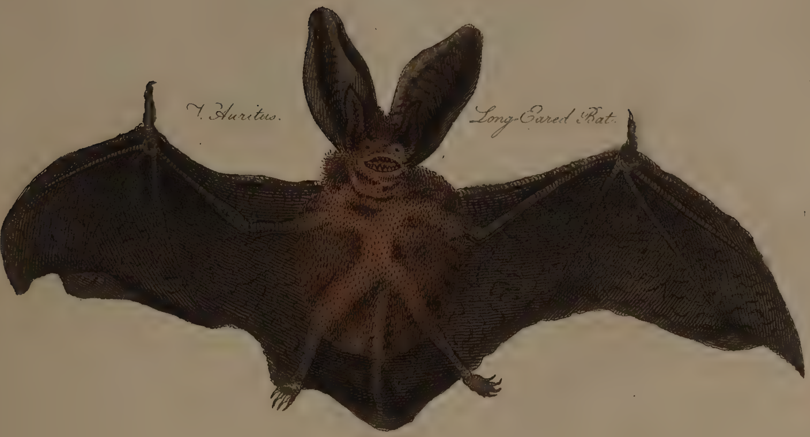
The animals of this genus fly abroad by night, by means of their expansile membrane; feed on moths, gnats, and nocturnal insects: they are torpid during winter in cold countries, gathering together in dark caverns, adhering to walls, and hanging by the hind-legs: they have a remarkable additional sense of avoiding objects in their way when deprived of their eyes.

1. V. vampyrus. Ternate bat. Tailless; nose simple; membrane divided between the thighs. Three other varieties, from variation of colour; black or dark-red; brownish-black; or straw-colour. Inhabits the west of Africa, south of Asia, islands of the Indian ocean, and of the South sea.

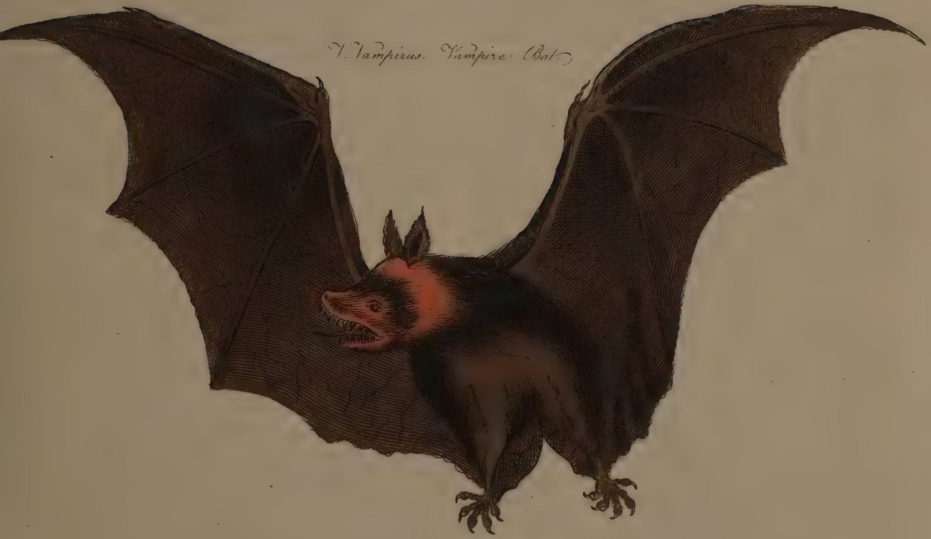
Bats of this species have large canine teeth; four cutting ones above, the same below; a sharp black nose; large naked ears; and a pointed tongue, terminated by sharp aculeated papillæ. The exterior toe is detached from the membrane; the claw strong and hooked. There are five toes on the hind-feet, with talons very crooked, strong, and compressed sideways. They have no tail; the membrane is divided behind quite to the rump. The head is of a dark ferruginous colour; the neck, shoulders, and under side, are of a much lighter and brighter red. On the back the hair is shorter, dusky, and smooth: the membranes of the wings dusky. Some are one foot long, and four from tip to tip of the wings expanded; but others vastly larger. This species is not gregarious, though numbers of them at times meet accidentally on the same tree in quest of food; and being frightened, may chance to fly the same way in a flock. Two of the varieties are named rougette and roussette.

The rougette differs from the roussette chiefly in that its whole body and head are cinereous, mixed with some black; and that on the neck there is a great bed of orange or red. The size is also much less; the extent of the wings being little more than two feet. They inhabit the same countries, agree in food, but differ in manners. They are found in Guinea, Madagascar, and all the other islands in the Indian ocean, New Holland, the Friendly Islands, the New Hebrides, and New Caledonia. The rougettes fly in flocks, and perfectly obscure the air with their numbers. They begin their flight from one neighbouring island to another immediately on sun-set, and return in clouds from the time it is light till sun-rise. They lodge during the day in hollow trees. Both kinds live on fruits, and are fond of the juice of the palm-tree, with which they will intoxicate themselves till they drop on the ground. They swarm like bees, hanging near one another from the trees in great clusters. In New Caledonia the natives use their hair in ropes, &c. They grow excessively fat at certain times of the

Vespertilio.



V. Auritus. Long-Eared Bat.



V. Vampirus. Vampire Bat.

London, Published by Sherwood & Co. Paternoster Row, Octr. 1st 1812.

year. The Indians eat them, and declare the flesh to be very good. The negroes have them in abhorrence. Their bodies are from the size of a pullet to that of a dove. While eating, they make a great noise: their smell is rank: they are fierce, bite, and make great resistance when taken. They bring one young one at a time. The ancients had some knowledge of these animals. Herodotus mentions winged wild-beasts like bats, that molested the Arabs who gathered the cassia, to such a degree, that they were obliged to cover themselves all but the eyes with skins. From such relations, it is probable, the poets formed their fictions of Harpies.

Both the greater and lesser species are equally fond of human blood. Persons attacked by them are in danger of passing from a sound sleep into the sleep of death. The bat is so dexterous a bleeder as to insinuate its aculeated tongue into a vein without being perceived; it then sucks the blood till it is satiated, all the while fanning with its wings, and agitating the air, in those hot climates, in so pleasing a manner, as to cast the sufferer into a still sounder repose. It is therefore very unsafe to sleep in the open air, or to leave open any entrance to such dangerous animals, in the countries in which these exist. Nor do they confine themselves to human blood: in certain parts of America they even destroy cattle.

The smallest variety has a head like a greyhound; large teeth; and long, broad, naked ears. The whole body is covered with soft short hair of a straw colour. It is near nine inches long: the extent of its wings two feet two inches.

It is to this species Linnéus refers the blood-sucking bat or vampyre of the ancients; though the term, as a specific name, is given to the next.

2. V. spectrum. Spectre. Tailless; nose funnelled; lanceolate: inhabits South America; like the former, lives in the palm-trees, and grows very fat: has a long nose; large teeth; long, broad, upright ears; a conic erect membrane at the end of the nose, bending at the tip and flexible. The hair on its body is cinereous, and partly long; the wings are full of ramified fibres; the membrane reaches from hind-leg to hind-leg. From the rump extend three tendons, which terminate at the end of the membrane. It is seven inches and a half long; extent of the wings two feet two: ugly, and deformed.

3. V. hastatus. Javelin bat. Tailless; nose foliate, resembling a leaf of trefoil; large pointed ears; an erect membrane at the end of the nose, in form of the head of an ancient javelin. It inhabits the warm parts of America; is of the size of the common bat: fur cinereous.

4. V. soricinus. Leaf bat. Tailless; snout lengthened; nose foliate, hearted; small rounded ears; a membrane on the nose, of the form of an ovate leaf; and a web between the hind legs. Of the same size as the last: fur mouse colour, tinged with red: inhabits Jamaica, Surinam, and Senegal. In the first, it lives in woods and caves, which are found full of its dung, productive of saltpetre. It feeds on the prickly pear.

5. V. spasma. Cordated bat. Tailless; nose foliate, obcordate; very broad and long ears; a heart-shaped membrane at the end of its nose, and a web between the hind legs: colour of its face a very light red; of the body still paler. It inhabits Ceylon, and the isle of Ternati, one of the Moluccas.

6. V. leporinus. Peruvian bat. Tailed; upper lips bifid.

This species has a head like a pug-dog; large straight pointed ears; two canine teeth, and two small cutting teeth between them, in each jaw. The tail is inclosed in the membrane that joins the hind-legs; and supported by two ligaments also involved in the membrane. Colour of its fur an iron grey; body equal to that of a middle-sized rat; extent of its wings two feet five inches.

There is a variety of this species with hanging lips like the chops of a mastiff: the nose, as well as upper lip, divided: long, narrow, sharp-pointed ears. A few joints of its short tail stick out without the membrane, which at the same time extends far beyond, is angular, and ends in a point: claws on the hind-feet large, hooked, and compressed sideways: membranes of the wings dusky, and very thin. Fur on the head and back brown; on the belly cinereous: five inches long: extent of the wings twenty. Inhabits Peru and the Musquito shore.

7. V. molossus. Bull-dog bat. Tail extending far beyond the membrane; upper lip pendulous. Two other varieties, from size and colour. Broad round ears, touching each other in front; a thick nose; upper part of the body deep ash colour, lower paler; the tail long; its five last joints are disengaged from the membrane: animal two inches long: extent of its wings nine and a half. It inhabits the West Indies; and has a near resemblance to the preceding.

8. V. nigrita. Senegal bat. Anterior part of the head yellowish brown; feet and tail black; long head; nose a little pointed; short and pointed ears; fur of a tawny brown, mixed with ash colour; belly paler; two joints of the tail free; four inches long; extent twenty-one.

9. V. lepturus. Pouch bat. Tailed; nostrils tubular; ears long, obtuse, valved: of a brown colour; an inch and a half long; inhabits Surinam; and has a small purse or pouch near the second joint of each wing.

10. V. hispidus. Bearded bat. Tailed; hairy; nostrils channelled; ears long, narrow. A small species. It has very long hair on its forehead and under its chin; its fur is of a reddish brown above; on its under side of a dirty white tinged with yellow.

11. V. Noveboracensis. New York bat. Tail long; nose short, acute; ears short, round. Head shaped like that of a mouse, only the top of the nose a little bifid; two canine teeth in each jaw; a very long tail in-

closed in the membrane, the upper side of which is covered with very long soft hair of a bright tawny colour: the belly paler. At the base of each wing a white spot: the wings thin, naked, and dusky: bones of the hind-legs very slender. Length ten inches and a half; tail near two; extent of the wings equal to the length of the body.

It inhabits North America, and is also found in New Zealand.

12. V. pictus. Striped bat. Tailed; nose simple; ears funnel-shaped, appendaged. Inhabits Ceylon. Wings striped with black, sometimes with tawny brown; two inches long. Its colour varies; the upper parts are sometimes of a clear reddish brown; the lower whitish.

13. V. cephalotes. Molucca bat. Tailed; head large; lips projecting; nostrils spiral; warts under the eyes; ears small, not valved. First described by Pallas; has a large head; small ears; thick nose; nostrils terminating outwards in form of a screw: tongue is covered with papillæ and minute spines: claw or thumb joined to the wing by a membrane: the first ray of the wing terminated by a claw. The end of the tail reaches beyond the membrane: upper parts greyish, or of a straw colour; belly of a dull white: three inches and three quarters long: extent of its wings about fifteen.

14. V. ferrum equinum. Horse-shoe bat. Tailed; nose like a horse-shoe; ears as long as the head, not valved; tail half the length of the body. Has its name from the membrane at the end of its nose: its ears are broad at their base, and sharp-pointed, inclining backward; it is cinereous above, whitish beneath: three inches and a half long; extent above fourteen.

There is a less variety of this species; found about the Caspian: inhabits Burgundy; and has been discovered in Kent.

15. V. noctula. Noctule, or great bat. Tailed; mouth simple; ears oval, valved, valve small; nose slightly bilobated; ears small and rounded; a small wart on the chin, and hair of a reddish ash colour; length two inches and eight-tenths; extent of its wings thirteen inches. It inhabits Great Britain and France, and is very common in Russia; it flies high in search of food. There were taken under the eaves of Queen's college, Cambridge, in one night, a hundred and eighty-five; the second night, sixty-three; the third night, two. Each that was measured had fifteen inches extent of wings.

16. V. serotinus. Serotine. Tailed; yellow; ears short, thick at the edges; nose longish; hair brown on the upper part of the body; belly of a paler colour: two inches and a half long; inhabits France; and is also found beyond the lake Baikal: but has not as yet been discovered in any other part of the vast dominions of Russia.

17. V. pipistrellus. Pipistrel. Tailed; forehead convex; nose small; upper lip swells out a little on each side; ears broad; forehead covered with long hair; lips yellow; above a yellowish brown; below dusky. This is the least of bats, not an inch and a quarter long; the extent of its wings only six and a half. It inhabits France, and is common about the rocky and mountainous parts of Siberia.

18. V. barbastellus. Barbastel. Tailed; cheeks tumid, hairy; a sunk forehead, and long broad ears, touching each other at their base, which conceal the face and head when looked at in front. Nose short, and flatted at the end; the upper part of the body of a dusky brown; the lower ash-coloured and brown: two inches long; extent ten and a half: inhabits France.

19. V. murinus. Common bat. Tailed; nose, mouth, simple; ears less than the head; fur mouse-coloured, tinged with red: two inches and a half long: extent of its wings nine inches. It inhabits Europe, and is common in Britain: flies at night, feeds on moths, is the prey of owls; caught by the heads of burdock whitened and thrown into the air; when on the ground cannot rise till it has crawled to an eminence; torpid in the winter; revives in the spring; breeds in the summer. See Nat. Hist. Pl. CLXXXVI.

VE'SPERTINE. *a.* (*vespertinus*, Latin.) Happening or coming in the evening.

VESPRIN, an episcopal town of Hungary, capital of a county of the same name, with a castle. It is seated on the Sed, 19 miles W. by S. of Stuhlweissenburg, and 70 S.S.E. of Presburg. Lon. 17. 57 E. Lat. 47. 16 N.

VE'SSEL. *s.* (*vasselle*, French.) 1. Any thing in which liquids, or other things, are put (*Burnet*). 2. The containing parts of an animal body (*Arbuthnot*). 3. Any vehicle in which men or goods are carried on water. See Boat and Ship. 4. Any capacity; any thing containing (*Milton*).

Vessels, in botany. Vasa—are, 1. Succiferous or sap vessels. Canals commonly straight, and of a very small bore, for conveying the liquor, juices, or sap of the vegetable. These are called vasa (κατ' ἐξοχὴν) in Delin. Pl.

2. Utricles, or little bags; usually full of a green pulp, filling up the interstices of the vessels, and serving as reservoirs wherein the sap is lodged and perhaps secreted.

3. Air vessels. Tracheæ. Spiral canals, usually of a larger bore, for receiving and distributing the air.

On this subject see the learned Grew's incomparable treatise on the Anatomy of Vegetables.

To Ve'ssel. *v. a.* (from the noun.) To put into a vessel; to barrel (*Bacon*).

VE'SSETS. *s.* A kind of cloth commonly made in Suffolk (*Bailey*).

VE'SSICNON. *s.* (among horsemen.) A windgall.

VEST. *s.* (*vestis*, Latin.) An outer garment (*Smith*).

To Vest. *v. n.* (from the noun.) 1. To dress; to deck; to enrobe (*Dryden*). 2. To dress in a long garment (*Milton*). 3. To make possessor of; to invest with (*Prior*). 4. To place in possession (*Clarendon*).

VESTA, a goddess, daughter of Rhea and Saturn. When considered as the mother of the gods, she is the mother of Rhea and Saturn; and when considered as the patroness of the vestal virgins and the goddess of fire, she is called the daughter of Saturn and Rhea. Under this name she was worshipped by the Romans. Æneas first introduced her mysteries into Italy, and Numa built her a temple where no males were permitted to go. A fire was continually kept lighted in her sanctuary by a certain number of virgins, who had dedicated themselves to the service of the goddess. If the fire ever became extinct, the virgin by whose negligence it had happened was severely punished, and it was kindled again by the rays of the sun. The temple of Vesta was of a round form, and the goddess was represented in a long flowing robe, with a veil on her head, holding in one hand a lamp, or a two-eared vessel, and in the other a javelin, or sometimes a palladium.

As the Greeks and the Romans were not so much given to the worshipping of stars as the eastern nations, so they adored Vesta and Vulcan, as the terrestrial and elementary fire, distinguishing the fire of the earth from that of heaven; taking Vesta for the earth, in the centre whereof (according to their opinion) an eternal fire was burning. This is reported by Ovid in his Fasti. And this poet tells us also afterwards, that the perpetual fire was the only image they had of Vesta, being impossible to have a true image of fire; and that it was a custom formerly to keep a fire at the entry of houses, which therefore has ever since kept the name of vestibulum; and that they sat at long tables to take their meals in these entries, where the fire represented the gods.

VESTA, one of the small planetary bodies discovered lately to revolve between the planets Mars and Jupiter. See ASTRONOMY.

VE'STAL. *a.* Denoting pure virginity.

VESTALS, priestesses among the Romans, consecrated to the service of Vesta. This office was very ancient, as the mother of Romulus was one of the vestals. Æneas is supposed to have first chosen the vestals. Numa first appointed four, to which Tarquin added two. After the expulsion of the Tarquins, the high priest was entrusted with the care of them. Their employment was to take care that the sacred fire of Vesta was not extinguished. It was required that they should be born of a good family, and be without blemish or deformity in every part of their body. For thirty years they were to remain in the greatest continence; the ten first years were spent in learning the duties of the order, the ten following were employed in discharging them with sanctity, and the ten last in instructing such as had entered the noviciate. When the thirty years were elapsed, they were permitted to marry, or if they still preferred celibacy, they waited upon the rest of the vestals. Few of the vestals were guilty of incontinence, and for the space of one thousand years, during which the order continued established, from the reign of Numa, only 18 were punished for the violation of their vow. The vestals were abolished by Theodosius the Great, and the fire of Vesta extinguished.

VESTALIA, festivals in honour of Vesta, observed at Rome on the 9th of June.

VESTIBULE, in architecture, a kind of entrance into a large building; being an open place before the hall, or at the bottom of the staircase. Vestibules intended for magnificence are usually between the court and the garden. For the etymology of this word, see VESTA.

VESTIBULUM. (*vestibulum*, an entry.) A round cavity of the internal ear, between the cochlea and semicircular canals, in which are an oval opening communicating with the cavity of the tympanum, and the orifices of the semicircular canals. It is within this cavity and the semicircular canals that the new apparatus, discovered by the celebrated neurologist Scarpa, lies. He has demonstrated membranous tubes, connected loosely by cellular texture, within the bony semicircular canals, each of which is dilated in the cavity of the vestibule into an ampulla; it is upon these ampullæ, which communicate by means of an alveus communis, that branches of the portio mollis are expanded.

VE'STIGE. *s.* (*vestigium*, Lat.) Footstep; mark left behind in passing (*Harvey*).

VE'STMENT. *s.* (*vestimentum*, Lat.) Garment; part of dress (*Waller*).

VESTRY, a place adjoining to a church, where the vestments of the minister are kept; also a meeting at such place where the minister, churchwarden, and principal men of most parishes, at this day make a parish vestry. On the Sunday before a vestry is to meet, public notice ought to be given, either in the church, or after divine service is ended, or else at the church-door as the parishioners come out, both of the calling of the said meeting, and also of the time and place of the assembling of it; and it is reasonable then also to declare for what business the said meeting is to be held, that none may be surprised, but that all may have full time before, to consider of what is to be proposed at the said meeting. Wats. c. 39.

In the ancient churches there were two places each known under the name of diaconicum: one called diaconicum bematis, which was within the chancel; the other diaconicum magnum, sometimes without, but sometimes portioned off from the chancel on the north side. This latter was of the nature of the modern vestries, the sacristy, in which the plate, vessels, and vestments, belonging to the church, and other things dedicated to holy uses, were laid up: and where in after times, " reliques and such like fopperies," says Dr. Cave, " were treasured up with great care and diligence." It is of the diaconicum magnum that Philostorgius is to be understood, when he says, the Christians of Paneas or Cæsarea Philippi translated the statue of our Saviour, erected by the woman whom he cured of an issue of blood, into the diaconicum, that is, into the vestry or repository of the church. The vestry was named diaconicum, because all things there deposited were under the care of the deacons, part of whose office was to look after the vestments, vessels, and utensils belonging to the altar.

VE'STURE. *s.* (*vesture*, old French.) 1. Garment; robe (*Shakspeare*). 2. Dress; habit; external form (*Bentley*).

VESUVIAN, in mineralogy, a species of argillaceous earth of the schorl tribe. See Scorlus.

VESUVIUS, a volcanic mountain of Italy, seven miles E. of Naples. It is near 30 miles in circuit at the base, and about 3600 feet high. Toward the sea it is covered with fruit trees and vineyards; but on the S. and W. sides, and on the top, nothing is to be seen but black ashes, cinders, and stones. The top of Vesuvius is divided into two points, and the southernmost is called Monte di Somma. The eruption in the year 79, under Titus, was accompanied by an earthquake, which overturned several cities, particularly Pompeii and Herculaneum; and this eruption proved fatal to Pliny the naturalist. Great quantities of ashes and sulphureous smoke were carried not only to Rome, but also beyond the Mediterranean, into Africa; birds were suffocated in the air, and fell down upon the ground; and fishes perished in the neighbouring waters, which were made hot, and infected by it. Another very violent eruption, in 1631, totally destroyed the town of Torre del Greco. The eruption in 1767 was the 27th from the time of Titus, since which there have been 11 others: next to those in 79 and 1631, that of 1794 was the most violent and destructive. In this eruption the lava flowed over 5000 acres of rich vineyards and cultivated lands, and the town of Torre del Greco was again destroyed; the top of the mountain likewise fell in, and the crater is now little short of two miles in circumference. Here was also a very disastrous eruption in September 1810. See Volcano.

VETCH, in botany. See Vicia.

Vetch (Bitter), in botany. See Orobus.

Vetch (Liquorice), in botany. See Astragalus.

Vetch (Kidney), in botany. See Anthyllis.

Vetch (Knob-rooted liquorice), in botany. See Glycine.

VE'TCHY. *a.* (from *vetch.*) Made of vetches; abounding in vetches (*Spenser*).

VE'TERAN. *s.* (*veteranus*, Latin.) An old soldier; a man long practised (*Addison*).

Ve'teran. *a.* Long practised in war; long experienced (*Bacon*).

VETERINA'RIAN. *s.* (*veterinarius*, Lat.) One skilled in the diseases of cattle (*Brown*).

VETERINARY COLLEGE, an institution first established in the year 1792, in St. Pancras, near London. The public are indebted for this truly national foundation to the discernment and patriotic exertions of the Agricultural Society of Odiham, in Hampshire. The first professor was Mr. St. Bel, a Frenchman, who had previously signalized himself in this country as a veretinary anatomist, by dissecting the famous race-horse Eclipse. See Eclipse.

This college is supported by public subscription. The annual contribution is two guineas, but payment of twenty guineas at once constitutes a subscriber for life. In some recent instances, the institution has also shared the bounty of parliament; an important saving having resulted to the nation from the appointment of veterinary surgeons to the different regiments of British cavalry. See College.

Veterinary science. The knowledge of administering to the diseases of cattle of all kinds. The term *veterinarius*, whence our English word *veterinary*, is of doubtful derivation. It is sufficient to observe that the term, as used by Columella and Vegetius, implies *pecuary* medicine, or a knowledge and practise in the diseases of cattle: a science studied both among the Greeks and Romans, and not unfrequently the subject of political regulations.

VETONICA CORDI. See Betonica.

VETURIA, the mother of Coriolanus, was solicited by the Roman matrons to go to her son with her daughter-in-law, and entreat him not to make war against his country. She went and prevailed over Coriolanus, and for her services the Roman senate offered to reward her as she pleased. She only asked to raise a temple to the goddess of female fortune, which was done on the very spot where she had pacified her son.

VETUS (L.), a Roman who proposed to open a communication between the Mediterranean and the German ocean, by means of a canal. He was put to death, by order of Nero.

VEVAY, a town of Swisserland, capital of a bailiwic, in the Pays de Vaud. The principal manufacture is hats, it has a large trade in cheese, and its wine is in great estimation. It stands near the lake of Geneva, 10 miles E. by S. of Lausanne. Lon. 7. 0 E. Lat. 46. 25 N.

To VEX. *v. a.* (*vexo*, Lat.) 1. To plague; to torment; to harass (*Prior*). 2. To disturb; to disquiet (*Pope*). 3. To trouble with slight provocations.

To Vex. *v. n.* To fret; to be on tenters; to be uneasy (*Chapman*).

VEXA'TION. *s.* (from *vex.*) 1. The act of troubling (*Shakspeare*). 2. The state of being troubled; uneasiness; sorrow (*Temple*). 3. The cause of trouble or uneasiness (*Shaksp.*). 4. An act of harassing by law (*Bacon*). 5. A slight teasing trouble.

VEXA'TIOUS. *a.* (from *vexation.*) 1. Afflictive; troublesome; causing trouble (*Sou.*). 2. Full of trouble, or uneasiness (*Digby*). 3. Teasing; slightly troublesome.

VEXA'TIOUSLY. *ad.* (from *vexatious.*) Troublesomely; uneasily.

VEXA'TIOUSNESS. *s.* (from *vexatious.*) Troublesomeness; uneasiness.

VE'XER. *s.* (from *vex.*) He who vexes.

VEXIL, in botany. (*vexillum.*) Standard or banner. Petalum corollæ papilionaceæ superius adscendens; alis carinæque incumbens.

VEZELAY, a town of France, in the department of Yonne. In 1560, this town being in the possession of the Calvinists was besieged by the troops of Charles IX. without success, after the loss of 1500 men. Theodore Beza was a native of Vezelay. It is seated on the top of a mountain, near the river Cure, 26 miles E. by S. of Auxerre.

UFA, a government of Siberia, formerly included in the government of Tobolsk. It is divided into the two provinces of Ufa and Orenburg.

Ufa, a town of Siberia, capital of the government of the same name. It is seated on the river Ufa, near its confluence with the Bielaia, 760 miles E. by S. of Moscow. Lon. 56. 0 E. Lat. 54. 50 N.

U'GLILY. *ad.* (from *ugly.*) Filthily; with deformity.

U'GLINESS. *s.* (from *ugly.*) 1. Deformity; contrariety to beauty (*Dryden*). 2. Turpitude; loathsomeness; moral depravity (*South*).

U'GLY. *a.* Deformed; offensive to the sight; contrary to beautiful; hateful (*Milton*).

VI'AL. *s.* (φιαλη.) A small bottle (*Addison*).

To Vi'al. *v. a.* To enclose in a vial (*Milt.*).

VI'AND. *s.* (*viande*, Fr. *vivanda*, Italian.) Food; meat dressed (*Shakspeare*).

VIA'TICUM. *s.* (Latin.) 1. Provision for a journey. 2. The last rites used to prepare the passing soul for its departure.

Viaticum, in Roman antiquity, an appellation given in common to all officers of any of the magistrates; as lictors, accensi, scribes, criers, &c.

VIBICES. (*vibex.*) The large purple spots which appear under the skin in certain malignant fevers.

To VI'BRATE. *v. a.* (*vibro*, Latin.) 1. To brandish; to move to and fro with quick motion. 2. To make to quiver (*Holder*).

To Vi'brate. *v. n.* 1. To play up and down, or to and fro (*Boyle*). 2. To quiver (*Pope*).

VIBRATION, in mechanics, a regular reciprocal motion of a body, as, for example, a pendulum, which, being freely suspended, swings or vibrates from side to side. Mechanical authors, instead of vibration, often use the term oscillation, especially when speaking of a body that thus swings by means of its own gravity or weight.

The vibrations of the same pendulum are all isochronal; that is, they are performed in an equal time, at least, in the same latitude; for in lower latitudes they are found to be slower than in higher ones. See Pendulum. In our latitude, a pendulum $39\frac{1}{8}$ inches long vibrates seconds, making 60 vibrations in a minute.

The vibrations of a longer pendulum take up more time than those of a shorter one, and that in the sub-duplicate ratio of the lengths, or the ratio of the square roots of the lengths. Thus, if one pendulum be 40 inches long, and another only 10 inches long, the former will be double the time of the latter in performing a vibration; for $\sqrt{40} : \sqrt{10} :: \sqrt{4} : \sqrt{1}$, that is, as two to one. And because the number of vibrations, made in any given time, is reciprocally as the duration of one vibration, therefore the number of such vibrations is in the reciprocal subduplicate ratio of the lengths of the pendulums.

Vibrations of a stretched chord, or string, arise from its elasticity; which power being in this case similar to gravity, as acting uniformly, the vibrations of a chord follow the same laws as those of pendulums. Consequently the vibrations of the same chord, equally stretched, though they be of unequal lengths, are isochronal, or are performed in equal times; and the squares of the times of vibration are to one another inversely as their tensions, or powers by which they are stretched. The vibrations of a spring, too, are proportional to the powers by which it is bent. These follow the same laws as those of the chord and pendulum; and consequently are isochronal, which is the foundation of spring-watches. See Chord and Music.

Vibrations are also used in physics, &c. and for several other regular alternate motions. Sensation, for instance, is supposed by Hartley to be performed by means of the vibratory motion of the contents of the nerves, begun by external objects, and propagated to the brain. See Hartley.

VIBRISSÆ. (*vibrissa*, from *vibro*, to quaver.) Hairs growing in the nostrils. See Capillus.

VIBRIO, in zoology, a genus of the class vermes, order infusoria. Worm invisible to the naked eye, very simple, round, elongated. Twenty species, found in vegetable infusions, in marshy waters, putrid sea-water, vinegar, and other mild acids, in paste, and other viscid substances; of various forms, and some of them often changing their form. The most minute is vibrio lineola, traced in vegetable infusions, a smaller animalcule than monas termo, and appearing little more than tremulous long points. See Nat. Hist. Pl. CLXXXV.

VIBURNUM. Guelder-rose. In botany, a genus of the class pentandria, order trigynia. Calyx five-parted, superior; corol five-cleft; berry one-seeded. Twenty-three species; chiefly natives of the East and West Indies, a few of Europe, two common to our own woods. The following are cultivated:

1. V. lantana. Wayfaring tree. Shoots pliant, covered with a lightish-brown bark; leaves heart-shaped, serrate, veined, downy underneath; flowers white and umbelled, suc-

ceeded by bunches of red berries. Found wild in our own woods.

2. V. opulus. Water-elder. Common guelder-rose. This is also a native of our woods, with large globular umbels of white flowers at the ends of the branches in great abundance; stems shrubby. There is a variety, constituting a tree eighteen or twenty feet high.

3. V. lentago. Pear-leaved viburnum.

4. V. cassinoides. Thick-leaved viburnum.

5. V. nitidum. Shining-leaved viburnum.

6. V. lævigatum. Cassioberry-bush viburnum.

7. V. nudum. Oval-leaved viburnum.

8. V. prunifolium. Plum-leaved viburnum.

9. V. dentatum. Tooth-leaved viburnum.

10. V. tinus. Laurestine or laurestinus, of which there are many varieties, both as imported from its native soil, the south of Europe, and as increased in its cultivated state.

All the species of viburnum, whether deciduous or evergreen, are durable in root, stem, and branches. They may be all propagated by layers; and will grow freely in the open ground all the year, whether in plantations or more open situations.

VIC, or VIQUE, a town of Spain, in Catalonia, and a bishop's see. It is seated in a fertile plain, on a small river that flows into the Ter, 35 miles N. of Barcelona. Lon. 2. 13 E. Lat. 41. 55 N.

VIC BIGORE, a town of France, in the department of Upper Pyrennees, situate on the Adour, 12 miles N. of Tarbes.

VIC LE COMPTE, a town of France, in the department of Puy de Dome, with a palace, where formerly the counts of Auvergne resided. About a mile from it are mineral springs. It is seated near the Allier, 15 miles S.E. of Clermont.

VICAR, one who supplies the place of another. The priest of every parish is called rector, unless the prædial tithes are appropriated, and then he is styled vicar; and when rectories are appropriated, vicars are to supply the rector's place. For the maintenance of the vicar, there was then set apart a certain portion of the tithes, commonly about a third part of the whole, which are now what are called the vicarial tithes; the rest being reserved to the use of the rectors, which for the like reason are denominated the rectorial tithes.

VI'CARAGE. *s.* 1. The benefice of a vicar. 2. The parsonage house of a vicar.

For the most part vicarages were endowed upon appropriations; but sometimes vicarages have been endowed without any appropriation of the parsonage; and there are several churches where the tithes are wholly impropriated, and no vicarage endowed; and there the impropriators are bound to maintain curates to perform divine service, &c. The parsons, patron, and ordinary, may create a vicarage, and endow it; and in time of vacancy of the church, the patron and ordinary may do it; but the ordinary alone cannot create a vicarage, without the patron's assent.

VICA'RIOUS. *a.* (*vicarius*, Latin.) Deputed; delegated; acting in the place of another (*Norris*).

VI'CARSHIP. *s.* (from *vicar.*) The office of a vicar.

VICE. *s.* (*vitium*, Latin.) 1. The course of action opposite to virtue; depravity of manners; inordinate life (*Law*). 2. A fault; an offence (*Milton*). 3. The fool or punchinello of old shows (*Shakspeare*). 4. (*vijs*, Dutch.) A kind of small iron press with screws, used by workmen (*Arbuthnot*). 5. Gripe; grasp (*Shakspeare*). 6. (*vice*, Latin.) It is used in composition for one, *qui vicem gerit*, who performs, in his stead, the office of a superior, or who has the second rank in command; as, a *viceroy*, *vicechancellor*.

To VICE. *v. a.* (from the noun.) To draw by a kind of violence (*Shakspeare*).

VI'CEADMIRAL. *s.* (*vice* and *admiral.*) 1. The second commander of a fleet (*Knolles*). 2. A naval officer of the second rank.

VI'CEADMIRALTY. *s.* (from *viceadmiral*). The office of a viceadmiral (*Carew*).

VI'CEAGENT. *s.* (*vice* and *agent.*) One who acts in the place of another (*Hooker*).

VICECHA'NCELLOR. *s.* (*vicecancellarius*, Latin.) The second magistrate of the universities.

VI'CED. *a.* (from *vice.*) Vitious; corrupt: not used (*Shakspeare*).

VICEGE'RENCY. *s.* (from *vicegerent.*) The office of a vicegerent; lieutenancy; deputed power (*South*).

VICEGE'RENT. *s.* (*vicem gerens*, Latin.) A lieutenant; one who is intrusted with the power of the superior (*Sprat*).

VICEGE'RENT. *a.* (*vicegerens*, Lat.) Having a delegated power; acting by substitution.

VICEGRAD, a town of Hungary, with a castle on the top of a rock, in which the crown of Hungary was formerly kept. It is seated on the S. side of the Danube, eight miles S.E. of Gran, and 16 N.W. of Buda.

VICENARY. *a.* (*vicenarius*, Latin.) Belonging to twenty (*Bailey*).

VICENTINO, a country of Italy, in the territory of Venice; bounded on the N. by Trentino and Feltrino, E. by Trevisano and Paduano, S. by Paduano, and W. by Veronese. It is 35 miles long and 27 broad, and so pleasant and fertile, that it is called the garden and flesh-market of Venice. Here are also mines of silver and iron, and quarries of stone, almost as fine as marble.

VICENZA, a city of Italy, the capital of Vicentino, and a bishop's see. It is without walls, but is a large place, adorned with above 20 palaces from the designs of Palladio, who was a native of this place. The cathedral is embellished with marble, and has some good paintings; beside which there are above 60 other churches, and in that of St. Corona, the high altar, and the painting by Paul Veronese of the Magi paying adoration to Christ, attract particular notice. In the fine square before the townhouse are two lofty columns, with St. Mark's winged lion on one of them, and on the other a statue of our Saviour. The other remarkable places are the Monte della Picta with its fine library, the Palazzo Vechio with its admirable paintings, the Theatrum Olympicum, after the model of the amphitheatre of Palladio, and the triumphal arches in the public promenade of Campo Marzo. The principal manufactures are silk, damask, and taffeta. This city is seated between the rivers Bachiglione and Rerone, and two mountains, in a fertile plain, 13 miles N.W. of Padua, 31 W. of Venice, and 135 N. of Rome. Lon. 11. 43 E. Lat. 45. 26 N.

VICHY, a town of France, in the department of Allier, famous for the mineral waters near it. It is seated on the Allier, 15 miles S.E. of Gannat, and 180 S. by E. of Paris. Lon. 3. 22 E. Lat. 46. 0 N.

VI'CEROY. *s.* (*viceroi*, French.) He who governs in place of a king with regal authority (*Swift*).

VI'CEROYALTY. *s.* (from *viceroy.*) Dignity of a viceroy (*Addison*).

VI'CETY. *s.* Nicety; exactness (*Ben Jonson*).

VICIA. Vetch. In botany, a genus of the class diadelphia, order decandria. Stigma transversely bearded on the lower side. Forty-four species, scattered over the globe; seven common to our own coasts and hedges. They are thus subdivided:

A. Peduncles elongated.

B. Flowers axillary, nearly sessile.

The following are chiefly worthy of notice:

1. V. sativa. Common vetch. Legumes sessile, generally in pairs; leaflets oblong-ovate, the lower ones obtuse, with a point; stipules toothed, with a discoloured depressed mark; flowers light and dark purple; pods erect; seeds black. It is well known to be an excellent fodder for horses, and a native of our own corn-fields.

2. V. cracca. Tufted vetch. Stem branched, three or four feet long; peduncles many-flowered, longer than the leaves; flowers imbricate, numerous, pendulous, purple; leaflets lanceolate, rather obtuse, pubescent; stipules half-arrow-shaped, linear-subulate, very entire. This is also a native of our own country, and found wild in our hedges. The roots are perennial; but the stalks are annual, weak, and grow to so great a length (for they will climb up to the height of six or eight feet wherever the tendrils which proceed from the end of their leaves can lay hold of boughs, branches, or the side of a hedge, to support them), that they are hardly fit to be cultivated in the field, though some writers have recommended them for this purpose: for as they cannot be supported there, they will trail so much upon the ground, that they will be apt to rot: nor do their shoots, which are less succulent than those of the vetch commonly raised, grow to a sufficient height to be cut for use till late in the spring, when there is little want of green food for cattle.

3. V. faba. Bean. A native of Persia, and too well known for minute description. It embraces a great multitude of varieties, and in every variety is a valuable esculent.

There are four sorts of beans commonly sown in our gardens; the small Lisbon, the Spanish, the Sandwich, and the Windsor-beans.

The first and second sorts are to be planted in October and November, under warm walls and hedges, where if they stand through the winter, they produce beans early in the spring. They may also be raised very close in beds, and covered with hoops and mats in the winter, and in spring planted out; but there is some hazard in the transplanting, and they will be a fortnight or more later than those which have stood the winter abroad. The Lisbon-bean is preferred to the Spanish; and the curious ought to have fresh seed every two years from abroad, for they are apt to degenerate, though not in goodness, yet in their earliness. The Spanish and Windsor-beans are not to be planted till Christmas; but especially the Windsor, which are subject, more than any other kind, to be hurt by the cold. These beans should have an open ground, and be planted at the distance of two feet and an half, row from row, and four inches from one another in the rows; but if the place is closely surrounded with hedges or walls, the distance must be greater, else the stalks will run high, but they will bear very little fruit. The Sandwich-beans are hardier than the Windsor, and may be planted to come in between the early crops and them; and though not much regarded at present, they are a very good bean. The first plantation of Windsor-beans should be made in the middle of January; and after that, a new plantation should be made every three weeks till the middle of May, that there may be a succession of crops.

Besides the garden-beans, there are several other varieties cultivated in the fields, but it is commonly the small horse-bean that is propagated by the plough. They delight chiefly in a stiff, strong, moist clay, and thrive not in light or dry grounds. They are commonly sown in February, or sooner. Three bushels will sow an acre.

Independently of these the sorts chiefly cultivated are the magazan, which is an excellent early bean; the token, an excellent bearer, appearing about the time of the Sandwich; and the white and black blossom, which are esteemed for the beautiful green of the beans when boiled. Without great care, however, these two are very apt to degenerate.

VI'CINAGE. *s.* (*vicinia*, Latin.) Neighbourhood; places adjoining.

VICI'NAL. VICI'NE. *a.* (*vicinus*, Latin.) Near; neighbouring (*Glanville*).

VICI'NITY. *s.* (*vicinus*, Latin.) 1. Nearness; state of being near (*Hale*). 2. Neighbourhood (*Rogers*).

VI'CIOUS. *a.* (from *vice.*) See VITIOUS. Devoted to vice; not addicted to virtue (*Milton*).

VICI'SSITUDE. *s.* (*vicissitudo*, Latin.) 1. Regular change; return of the same things in the same succession (*Newton*). 2. Revolution; change (*Atterbury*).

VICO, a town of Naples, in Terra di Lavoro, with a bishop's see. It was almost ruined by an earthquake in 1694, and is seated near the bay of Naples, 15 miles S. by E. of Naples. Lon. 14. 28 E. Lat. 40. 38 N.

Vico, a town of Naples, in Principato Citeriore, 17 miles S.S.E. of Naples. Lon. 14. 30 E. Lat. 40. 43 N.

Vico, a town of Corsica, in which is the cathedral of the bishop of Sagona, a town now in ruins. It is 15 miles S.W. of Corte, and 30 S. of Calvi. Lon. 9. 16 E. Lat. 41. 55 N.

VICOVARO, a town and principality of Italy, in the province of Sabina, seated near the Teverone, eight miles E. of Tivoli, and 40 N.E. of Rome. Lon. 13. 8 E. Lat. 42. 30 N.

VI'CTIM. *s.* (*victima*, Latin.) 1. A sacrifice; something slain for a sacrifice (*Denham*). 2. Something destroyed (*Prior*).

VI'CTOR. *s.* (*victor*, Latin.) Conqueror; vanquisher; he that gains the advantage in any contest (*Sidney. Addison*).

Victor Aurelius, a writer in the age of Constantius. He gave the world a concise history of the Roman emperors, from the age of Augustus to his own time, or A. D. 360. He also wrote an abridgment of the Roman history, before the age of Julius Cæsar, which is now extant. Victor was greatly esteemed by the emperors, and honoured with the consulship.

VICTORALIS LONGA. This officinal plant is the aillium victoralis of Linnéus. The root, which when dried loses its alliaceous smell and taste, is said to be efficacious in allaying the abdominal spasms of gravid females.

VICTORIA, one of the deities of the Romans, called by the Greeks *νικη*, supposed to be the daughter of Titian and Styx. The goddess of victory was sister to Strength and Valor, and was one of the attendants of Jupiter. She was greatly honoured by the Greeks, particularly at Athens. She was represented with wings, crowned with laurel, and holding the branch of a palm-tree in her hand.

VICTORINA, a celebrated matron who placed herself at the head of the Roman armies, and made war against the emperor Gallienus. Her son Victorinus, and her grandson of the same name, were declared emperors, but when they were assassinated, Victorina invested with the imperial purple one of her favourites called Tetricus. She was sometime after poisoned, A. D. 269, according to some, by Tetricus himself.

VICTO'RIOUS. *a.* (*victorieux*, French.) 1. Conquering; having obtained conquest; superiour in contest (*Milton*). 2. Producing conquest (*Pope*). 3. Betokening conquest.

VICTO'RIOUSLY. *ad.* With conquest; successfully; triumphantly (*Hammond*).

VICTO'RIOUSNESS. *s.* (from *victorious*.) The state or quality of being victorious.

VI'CTORY. *s.* (*victoria*, Latin.) Conquest; success in contest; triumph (*Taylor*).

VI'CTRESS. *s.* (from *victor*.) A female that conquers: not used (*Shakspeare*).

VI'CTUAL. Vi'ctuals. *s.* (*victuailles*, Fr.) Provision of food; stores for the support of life; meat (*Shakspeare*).

To Vi'ctual. *v. a.* (from the noun.) To store with provision for food (*Shakspeare*).

VI'CTUALLER. *s.* (from *victuals*.) 1. One who provides victuals (*Hayward*). 2. One who keeps a house of entertainment.

VICUNA, or Vicugna, a species of the Camel genus, which see.

For the best account of this interesting animal we are indebted to M. Larrey, who a few years ago had an opportunity of particularly attending to both a male and female, and of dissecting them after the owner had unfortunately lost them. His account, in as abridged a form as we can give it, is as follows:

"A merchant of Cadiz, a lover of natural history, brought from Peru two young vicunas, a male and a female. He first landed them at Cadiz, at the beginning of the year 1808; and toward the end of April in the same year conveyed them to Madrid. They did not appear to be inconvenienced by the change of climate, or difference of food, till the weather began to get very hot. They were very badly lodged in a small dark room, not well ventilated. In this hole I had an opportunity of seeing them, examining their figure and gait, and studying their manners and habits.

"The female, which was larger and older than the male, being about three feet high, died soon after, during a short tour I made in the neighbourhood of Madrid to inspect the hospitals. I could not learn the cause of her death; but, as the body quickly putrefied, it was thrown into the fields.

"On my return I hastened to visit the two strangers, but found only the male, sad, dejected, and uttering plaintive cries at the slightest touch. He ate but little, and remained constantly squatted on his four legs: but he appeared better and more lively in the cool of the evening and morning, which he seemed to seek; while in the heat of the day he was overcome, and breathed with difficulty. Thus melancholy and unwell he passed the first week of June; and, about the 15th, symptoms of inflammation appeared, a few days after which he died.

"Foreseeing this event, I had obtained permission of the owner to dissect the animal after his death, and dispose of his skin. My first care was to remove this with due caution, that I might be able to preserve the natural shape of the animal in stuffing it: after which I proceeded to examine the viscera, the articulations, and the general disposition of the muscles."

Through this anatomical detail it is not necessary to follow the author: we shall only therefore present the reader with M. Larrey's description of his external figure, and general history.

"The head of the vicuna has the same shape and external characters as that of the camel. The jaws have the same number of grinding teeth. The lower has only four cutting teeth, the middlemost of which are the most prominent. The upper has none, as in other ruminating animals.

"The fore and hind limbs in every respect resemble those of the camel.

"The joints of the limbs form a perfect ginglymus, admitting a direct and complete flexure of one part against the next, so that this animal, like the camel, bends all his four legs underneath his breast when he lies down: and this double flexure is the effect of the natural structure of the limbs, as in the camel, which I had an opportunity of studying in Egypt, and of examining from its birth to its adult age. It is not therefore the result of training.

"The feet of the vicuna are terminated by two long, narrow, soft soles; and have much resemblance to the feet of young camels.

"The outward figure of the head perfectly resembles that of a young camel, except in the ears, which are erect and smooth like those of a kangaroo. The neck, body, and limbs are similarly disposed; and the body, like it, is covered with a fawn-coloured, silky wool, but of extreme fineness. From it may be made stuffs as soft and fine as the shawls of Casimire. This tufted fleece keeps the animal so warm, that it seeks and prefers for its habitation the summits of mountains covered with snow. If the ears of this animal were uniformly cut, it would exactly resemble a camel two or three months old.

"The vicuna has the same cries as the camel, the same gait, and nearly the same disposition. It is extremely shy and timid. It utters plaintive cries at the least unpleasant sensations; and when too much alarmed its eyes are filled with tears. The very active movement of its tail and ears indicate its different sensations. It is very gentle and caressing when tamed.

"The resemblance the vicuna bears to the camel in its external figure, internal structure, and qualities, would lead me to call it *camelus parvus auribus rectus*, the little camel with erect ears.

"The owner of the animal gave me the following account of the Peruvian mode of hunting it.

"The vicunas commonly inhabit the frozen summits of the high mountains of the Cordilleras. Several of the inhabitants assemble together to hunt them. They first surround the mountain where they are most numerous; and by means of mournful cries, or the discordant sound of large wind instruments, as hunting horns, they terrify the animals, who take flight to the summit of the mountain, where no doubt they suppose themselves inaccessible. Here the hunters form a line of circumvallation with stakes, on which are small red flags. These stakes are connected with each other by cords placed pretty close. Two or three hunters then attack the herd, which disperses. Frequently some of the vicunas are surprised, and the rest rush down the mountain, but as soon as they reach the fence, instead of leaping over it, which they might easily do, terrified at the colour of the flags, they crouch down in the snow, or in holes, where hunters posted for the purpose easily take them. After tying their legs, they carry them to a convenient place, to sheer their fleeces. If the animals be old, they let them loose: if young, they take them to their huts, keep them, and train them to carry burdens, loading them in the same manner as camels. They cannot live in the burning plains of America, and accordingly the inhabitants of the mountains alone can keep them. This no doubt is the reason why the animal has been hitherto so little known.

"When the animal is young, its flesh is good eating; but the wool is justly in high estimation. The merchant assured me, that it was seldom sent to Europe pure, being almost always mixed with other wool of less value.

"I think with him, that it might be naturalized and breed in the Pyrenees, on the summit of which the snow scarcely ever thaws; particularly as the pasture there is excellent."

VIDA (Marcus Hieronymus), bishop of Alva, in Mountserrat, and one of the most excellent Latin poets that have appeared since the Augustan age, was born at Cremona in 1470. Having distinguished himself by his learning and taste for literature, he was made bishop of Alva in 1552. After continuing two years with pope Clement VII. at Rome, he went to reside upon his see; where, for thirty years, he performed all the offices of a good bishop and a good man; and though he was mild, gentle, and full of goodness, he was so far from wanting spirit, that when the city of Alva was besieged by the French, he used all possible means to prevent its being given up, by strenuously exhorting the people, and, when provisions were scarce, by supplying them at his own expence. His poetics, and poem on the silk-worm, pass for his master-piece; his poem on the game of chess is also greatly admired. He also wrote hymns, eclogues, and a poem entitled Christiados, in six books; all which are in Latin, and have gained him a great reputation. His works in prose consist of dialogues, synodical constitutions, letters, and other pieces. He died in 1566, soon after his being made bishop of Cremona.

VIDE'LICET. *ad.* (Latin.) To wit; that is. Generally written *viz.*

To VIE. *v a.* To show or practise in competition (*L'Estrange*).

To VIE. *v. n.* To contest; to contend (*Swift*).

VIELSK, a town of Russia, in the government of Vologda, situate on the Vaga, 156 miles N.N.E. of Vologda. Lon. 41. 45 E. Lat. 61. 40 N.

VIENNA, a city of Germany, capital of the circle of Austria, and of the whole German empire. The city itself is not of great extent, nor can it be enlarged, being limited by a very strong fortification; but it is populous, and contains 60,000 inhabitants. The streets in general are narrow, and the houses high. Some of the public buildings are magnificent: the chief of them are the imperial palace, the library, and the museum; the palaces of the princes Lichtenstein, Eugene, &c. Vienna was ineffectually besieged by the Turks, in 1589 and 1683. At the latter period, the siege was raised by John Sobieski, king of Poland, who totally defeated the Turkish army before the walls of this place. No houses without the walls are allowed to be built nearer to the glacis than 600 yards; so that there is a circular field of that breadth all round the city, which has a beautiful and salutary effect. The suburbs are said to contain 200,000 inhabitants; but they are not near so populous, in proportion to their size, as the city, for many houses have extensive gardens belonging to them. Many families who live during the winter within the fortifications, spend the summer in the suburbs. The cathedral is built of freestone, and the steeple is 447 feet high. Joining to this church is the archbishop's palace, the front of which is very fine. The university had several thousand students, who, when this city was besieged, mounted guard, as they did also in 1741. The archducal library is much frequented by foreigners, as it contains above 100,000 printed books, and 10,000 manuscripts. The archducal treasury, and a cabinet of curiosities of the house of Austria, are great rarities. There is a sort of harbour on the Danube, where are magazines of naval stores, and ships have been fitted out to serve on that river against the Turks. Vienna is an archbishop's see; and in the winter season is frequently visited by dreadful storms, which rush through the openings of the neighbouring mountains. It is seated at the place where the river Vienna, or Wien, falls into the Danube, 50 miles W. of Presburg, 350 N.N.E. of Rome, 520 S.E. of Amsterdam, and 565 E. of Paris. Lon. 16. 22 E. Lat. 48. 16 N.

Vienna, a town of Maryland, in Dorchester county, situate on Nanticoke river. It carries on a brisk trade with the neighbouring seaports, and is 150 miles S.W. of Philadelphia.

VIENNE, a considerable town of France, in the department of Isere. It is seated on the Rhone, over which it had formerly a bridge, of which only some piers remain, that render the navigation dangerous. Under the Romans it was the capital of a colony, and the seat of a senate. In the fifth century, the Burgundians made it the capital of their kingdom. Its commerce consists in wines, silk, and sword-blades, which last are highly esteemed. Before the revolution, it was the see of an archbishop. The cathedral is a handsome gothic structure. In 1311, a general council was held here, at which pope Clement V. presided, and Philip the Fair of France, Edward II. of England, and James XI. of Arragon, assisted. This council is famous for the suppression of the order of the knights templars of Jerusalem. Near Vienne, on the banks of the Rhone, are produced the excellent wines of Côte-Rôtie, in a soil where the grape, as the name imports, is almost parched up by the sun; and, a little further, are grown the famous hermitage wines, so called, because a hermit had his grotto there. Vienne is 15 miles S. of Lyons, and 265 S.E. of Paris. Lon. 4. 55 E. Lat. 45. 31 N.

Vienne, a department of France, formed of part of the late province of Poitou. It takes its name from a river which rises in the department of Correze, and flows into the Loire five miles above Saumur. Poitiers is the capital.

VIETA (Francis), a very celebrated French mathematician, was born in 1540 at Fontenai, or Fontenai-le-Comté, in Lower Poitou, a province of France. He was master of requests at Paris, where he died in 1603, being the sixty-third year of his age. Among other branches of learning in which he excelled, he was one of the most respectable mathematicians of the sixteenth century, or indeed of any age. His writings abound with marks of great originality, and the finest genius, as well as intense application. His application was such, that he has sometimes remained in his study for three days together, without eating or sleeping. His inventions and improvements in all parts of the mathematics were very considerable. He was in a manner the inventor and introducer of specious algebra, in which letters are used instead of numbers, as well as of many beautiful theorems in that science. See Algebra. He made also considerable improvements in geometry and trigonometry. His angular sections are a very ingenious and masterly performance: by these he was enabled to resolve the problem of Adrian Roman, proposed to all mathematicians, amounting to an equation of the 45th degree. Romanus was so struck with his sagacity, that he immediately quitted his residence of Wirtzbourg in Franconia, and came to France to visit him, and solicit his friendship. His Apollonius Gallus, being a restoration of Apollonius's tract on Tangencies, and many other geometrical pieces to be found in his works, shew the finest taste and genius for true geometrical speculations. He gave some masterly tracts on trigonometry, both plane and spherical, which may be found in the collection of his works, published at Leyden in 1646, by Schooten, besides another large and separate volume in folio, published in the author's lifetime at Paris in 1579, containing extensive trigonometrical tables, with the construction and use of the same, which are particularly described in the introduction to Hutton's logarithms. To this complete treatise on trigonometry, plane and spherical, are subjoined several miscellaneous problems and observations, such as, the quadrature of the circle, the duplication of the cube, &c. Computations are here given of the ratio of the diameter of a circle to the circumference, and of the length of the sine of one minute, both to a great many places of figures. Vieta also attempted a reformation of the Gregorian character, wrote some pieces on astronomy, and was much celebrated for his skill as a decypherer.

To VIEW. *v. a.* (*veu*, French.) 1. To survey; to look on by way of examination (*Prior*). 2. To see; to perceive by the eye (*Milton*).

VIEW. *s.* (from the verb.) 1. Prospect (*Wotton*). 2. Sight; power of beholding (*Locke*). 3. Intellectual sight; mental ken (*Milton*). 4. Act of seeing (*Denham*). 5. Sight; eye (*Locke*). 6. Survey; examination by the eye (*Dryden*). 7. Intellectual survey (*Locke*). 8. Space that may be taken in by the eye; reach of sight (*Dryden*). 9. Appearance; show (*Waller*). 10. Display; exhibition to the sight or mind (*Locke*). 11. Prospect of interest (*Locke*). 12. Intention; design (*Arbuthnot*).

VI′EWER. *s.* (from *view*.) One who views.

VI′EWLESS. *a.* (from *view*.) Unseen; not discernible by the sight (*Pope*).

VIGESIMA′TION. *s.* (*vigesimus*, Latin.) The act of putting to death every twentieth man (*Bailey*).

VI′GIL. *s.* (*vigilia*, Latin.) 1. Watch; devotions performed in the customary hours of rest (*Pope*). 2. A fast kept before a holiday (*Shakspeare*). 3. Service used on the night before a holiday (*Stillingfleet*). 4. Watch; forbearance of sleep (*Waller*).

Vigils, in church history, were the pernoctations, which as harbingers went before to prepare for the solemnities of the following days. These vigils were much of the same nature as the common nocturnal, or daily morning prayer, which was early, before it was light: and they only differed from the usual Antelucan service in this, that whereas the usual morning service never began till after midnight toward cock-crowing in the morning, these vigils were a longer service, which kept the congregation at church the greatest part of the night. These the Greeks called *παννυχιδας*, and the Latins, *pernoctationes*, and *pervigilia*, watchings all the night. St. Chrysostom often speaks of them: "Go into the church," says he, "and there see the poor continuing from midnight to break of day: go and see the holy pernoctations, joining day and night together: behold the people of Christ, fearing neither by night nor by day, the tyranny of sleep nor the necessities of poverty." In another place he calls them the continued and perfect night stations, in opposition to the stations by day, which were but partial and imperfect. "By these," he adds, "you imitate the station of the angelic choir, whilst you offer up *ακαταπαυστον υμνολογιαν*, psalmody, and hymnody, incessantly to your Creator. O the wonderful gifts of Christ! The armies of angels sing glory to God above: and on earth, men keeping their choral stations in the church, sing the same doxology, after their example. The cherubim above cry aloud, Holy, holy, holy! in the trisagion hymn; and the congregation of men on earth below send up the same. And so a common general assembly is made up of the inhabitants of heaven and earth together. Their thanksgiving is one and the same; their exultation the same; their joyful choral-station the very same." Chrys. Hom. 4. & 1. de verb. Esai.

Vigils were also kept as anniversaries to usher in the greater festivals of the Nativity, Epiphany, Easter, Ascension-day, Pentecost, &c. as we find mentioned by Tertullian, Lactantius, Chrysostom, Socrates, and many others.

Vigils of plants or flowers. Status floris aperti. The state of the open flower. —Absolvuntur determinatis horis diei, quibus plantæ flores quotidie operiunt, expandunt et claudunt. These vigils or watchings are performed at determined hours of the day, when plants open, expand, and shut their flowers daily.

Linnéus calls those flowers which observe this stated rule of opening and shutting, solar flowers; and divides them into three kinds.—

1. Meteoric. Opening and shutting sooner or later, according to the temperature of the air.

2. Tropic, or tropical solar flowers. Opening and shutting sooner or later as the days increase or decrease; and therefore observing the unequal or Turkish hours.

3. Equinoctial, or equinoctial solar flowers. Opening, and usually shutting at certain determinate hours of the day; and therefore observing equal or European hours.

Linnéus has given a table of these, with some observations, in Philos. Bot. p. 273.

VI′GILANCE. Vi′gilancy. *s.* (*vigilance*, French; *vigilantia*, Latin.) 1. Forbearance of sleep (*Broome*). 2. Watchfulness; circumspection; incessant care (*Wotton*). 3. Guard; watch (*Milton*).

Vigilance, in medicine. Pervigilium. Vigilance when attended by anxiety, pain in the head, loss of appetite, and diminution of strength, is by Sauvage and Sagar considered as a genus of disease, and called agrypnia. It may arise, they conceive, from a variety of causes, but chiefly,

1. From retrocedent or atonic gout.

2. It may be induced by passions of the mind, such as anger, fear, and strong desire.

3. From hysterical affections, when it is attended by palpitations, startings, subsultus tendinum, impeded respiration, spasmodic contraction, and convulsive motions, at the instant when sleep is stealing on the senses.

4. From disease of the head, when it is attended by violent head-ach.

5. An abscess in the pancreas has been the cause of vigilance, attended by cold sweats, with syncope.

6. It is often induced by grief, and therefore coinciding with the second species.

7. Indigestion frequently is the cause of it.

8. It is common in all fevers.

9. It is an attendant on old age.

10. It not unfrequently precedes epistaxis and other critical discharges.

11. A very common cause is the irritation of insects; as bugs, lice, fleas, gnats, ants, &c.

The reverend Dr. Townsend considers the occasional causes to be evidently such as stimulate the system.

1. The stimuli may be purely mental, such as anger, fear, joy, grief, with intensity of thought and volition. He informs us he was acquainted thirty years ago with a most amiable lady, who having the misfortune to lose a husband, by whom she was tenderly beloved, never slept a moment for six weeks; and Sauvage makes mention of a young lady at Montpellier, who, having seen her husband murdered by assassins, was deprived of sleep more than three months.

2. The stimuli may be material, including such changes in the body as excite sensation; such as strong light, loud sounds, offensive smells, disgusting taste, hard touch, if they are unusual or such as commonly call forth volition, for none of these produce watchfulness, when the mind has been accustomed to regard them with indifference. The most powerful stimulus is pain, because by this the animal is warned of immediate danger; whether the uneasy sensation arises from spasm, distention, laceration, or any solution of continuity produced either mechanically or by chemical attraction. When pain has been for any length of time endured, it proves, like all other stimulants, a powerful sedative.

3. The stimuli, if not so powerful as to excite sensation or volition, may yet produce irritation.

The irritation may be,

a. In the lungs; as in cases of asthma and catarrh.

b. In the stomach, arising from indigested sordes, viscid mucus, worms, hunger and thirst. Hoffman says, "ventriculo benehabente, totum corpus alacritus est, somnus sit placidus, si vero onustus est alimentis incongruis, somnus deficit vel insomniis terrificis interturbatur."

c. In the bowels; from bile and flatulence, from fæces in the rectum.

d. In the urinary bladder.

e. In the seminal vessels.

f. In the brain, or its meninges, either arising from or attended by a quickened circulation of the blood; for whatever accelerates the motion of the circulating fluids in the vessels of the brain, induces vigilance. Thus far, says Dr. Townsend, all is clear, but as we advance we shall find ourselves in the regions of doubt, of darkness, and of conjecture. How then shall we account for vigilance? Borrowing a ray of light from chemistry, shall we venture to suppose it may arise from the uninterrupted supply of oxygen and hydrogen to the vessels of the brain? If we suppose sleep to be produced by the pressure of roscid lymph on the ventricles of the brain, and particularly, as I may now proceed to state it, by pressure on the plexus choroides and the minuter or secreting vessels of the brain, may we not indulge our imagination and conjecture, that vigilance is produced by the union of oxygen and hydrogen; the latter perhaps secreted by some of the vessels of the brain, the former derived by chemical attraction from the arterial blood of the plexus choroides? We know, that by vigilance and thought, as well as by motion in the system, whether vital or voluntary, both oxygen and hydrogen are consumed and lost, whilst heat and water are produced; and it is now understood that the chemical union of those principles generates water and disengages heat.

Let the student recollect, continues our author, that in the ventricles of the brain he finds no coagulable lymph, but the purest water, which is therefore denominated roscid lymph by Boerhaave.

I have already stated, that the absorbents recover their tone merely by quiescence; but supposing the stimuli above stated are applied to any part of the system, the absorbents, agreeable to the laws of the animal economy, will be excited by sympathy; for it is observed, that irritation draws into consent the nearest exhalents, and the remote absorbents. The fact is certain, and the wisdom of this economy will be obvious to the student, if he call to mind the efforts of nature to relieve herself.

In support of these theoretical conjectures, the subsequent considerations are suggested.

1. A superabundant supply of hydrogen from fermented liquors received into the stomach, at first brightens all the faculties and gives increase of vigour, but speedily brings on intoxication followed by apoplectic sleep; but the inspiration of oxygenated air stops the progress of intoxication, and therefore prevents apoplectic sleep.

2. We observe in crowded rooms, when candles burn dim for want of air, the human understanding is confused, all its powers are enfeebled; but the imagination kindles, when the lungs take in a fresh supply of well oxygenated air.

3. The inspiration of foul air in mines, whether hydrogenous, carbonic, or the two combined, brings on deep sleep and death; but by the admission of uncontaminated air the miners are speedily revived, and the same happens frequently in Spain to those who sit too long, or sleep in a close room with burning charcoal, which consumes the oxygen and discharges carbonic air.

4. Boerhaave has remarked, that in acute diseases, the blood is found chiefly in the arteries, while the veins are comparatively empty. For this phænomenon he in vain endeavours to account; but the cause is evidently this: the blood in all inflammatory fevers, being highly oxygenated, strongly stimulates the heart, and is therefore propelled into the arteries in great abundance, and quicker than the veins can receive it. But when highly oxygenated blood, as in acute diseases, such as synocha, pleuritis, and phrenitis, moves with rapidity through the system, and therefore in the vessels of the brain, vigilance, particularly in young subjects, sometimes continues night and day for a whole week together. In such circumstances, as Boerhaave, with his usual accuracy of discernment, well observed, their body has been rendered lighter by one-third part of its weight, so that

those who had been very fat, have been reduced almost to skeletons. See his lectures on the theory of physic, sections 599, 600.

In such circumstances, whilst the fever rages, the patient can rise up with ease and support himself in bed, but when the fever is exhausted, weak, and relaxed, he sleeps incessantly, or only awakes to take in more food, that is, to supply the lamp of life with hydrogen, then sleeps again.

The process of combustion being little understood, unless by modern chemists, it may be explained in the burning of a wax candle. You kindle twisted threads of cotton and thereby melt the wax; this being fluid is, by capillary attraction, drawn up into the wick, and ascends into the part which is in flame, from whence it arises in the form of gass, and in that state combining readily with the oxygen of the atmospheric air, composes aqueous vapour, which may be easily condensed, and sets at liberty both light and heat. A very elegant process of combustion, and at the same time a very simple one, may be seen by putting one drop of ether into a two ounce phial of oxygenated air, and kindling it with a match. The combination is instantaneous; water is produced, and the light and heat are not inferior to those which are disengaged from detonating gold.

It is allowed that the blood, in its return towards the heart, has lost the oxygen which it had acquired in the lungs. What then is become of it? Surely it is not annihilated. The quantity derived from the air merely by breathing is considerable.

It is well known that both mental and muscular exertion consume the fat; and it is well ascertained that whenever there is motion or any combination in the system, heat is generated; it is likewise proved by the experiments of Dr. Priestley, that oxygen will pass through the pores of membranes to unite with hydrogen.

Since, then, we have lost oxygen and hydrogen in great abundance, and acquired both heat and water, is it not probable that the oxygen, which disappeared, has formed a chemical union with hydrogen and produced the water, whilst at the same time heat has been evolved? The water thus continually formed is either taken up incessantly by the lymphatics, and conveyed back to the mass of circulating fluids, or passes out of the system by the exhalent arteries.

Whatever then becomes of these conjectures respecting the proximate cause of vigilance, it stands confessed, that the occasional causes are such as stimulate the system, and that from common watchfulness to furious raving, it bears proportion to the degree of excitement of the brain.

Dreaming is the intermediate state between vigilance and sleep, and may be considered here. It takes place usually towards the morning, and may be at any time excited by irritation in the system. It is the imperfect exercise of memory; and the impression may be either indifferent, or attended with joy, grief, hope, fear, desire, and volition.

The intensity of these affections depends on the degree of excitement in the brain, and this again will be in proportion to the irritability of the system and to the energy of the exciting cause, which cause may be either mental or material.

1. If during the day we have seen any thing uncommonly striking, although not in the least interesting, as producing neither pain, pleasure, hope, nor fear; the image will, unless we sleep profoundly, be renewed by night. Spinosa relates of himself that from the time in which he first saw Brazilians seven feet high with long yellow hair, it made so strong an impression, that he had always the same image in his dreams, and could with difficulty free himself from it during the day.

2. The oftener this image is renewed, the more readily will it be excited in the mind; and by frequency of recurrence a regular habit will be established.

3. When the passions of joy, sorrow, hope, desire, fear, and terror, have been strongly excited in the day, the attendant images will present themselves in dreams by night. A lady of Montpellier no sooner closed her eyes to sleep, than the image of her murdered husband, and the assassins sprinkled with his blood, were in the most vivid forms represented to her view.

4. Whatever image is by dreaming presented to the mind, is apt to associate others between which and it there is either natural or accidental connexion. Thus, if a man dreams that he has been guilty of a crime, his imagination will represent constables pursuing, the judge pronouncing sentence, and the executioner fixing the halter on his neck.

There is a curious experiment, which shews a propensity in the system to renew whatever images have made a vivid impression on the sight.

If, when the sun shines bright, you look through a window at a landscape, fixing your eyes steadily on one spot, till vision is distressing, and till the view begins to fade, then gently close your eye-lids and put a hat before your face, the representation will alternately appear and vanish; and what is still more remarkable, the image of the window-bars and of the nearest trees will be dark, whilst the sky appears to be either purple or light green; but whenever the hat is removed, and light is transmitted through the eyelids, the bars of the window and the trees become red-like edged with green, and the sky is dark. Even when the eyes have been for some time opened and engaged with other objects, on being closed again, all these appearances will be renewed.

When debility and irritability prevail in the extreme, the most trifling irritation will be sufficient to produce the recurrence of images, passions, sensations, and association of ideas; but in the more torpid it requires some powerful stimulus; and this may be either in the stomach or the brain itself.

The stomach is commonly the part in which we may seek the occasional cause of dreams; but whatever induces determination to the head, or quickens the circulation in the vessels of the brain, without producing vigilance, will have the same effect. Dr. Lower gives the case of one who slept soundly whilst his head was inclined forward, yet when his head fell back he was soon awakened with horrid dreams and tremors.

In this patient, after death, water was discovered in the ventricles of the brain.

All this is ingenious, but by no means satisfactory. The phænomena both of vigilance and dreaming are certainly closely connected with that of sleep: and we have already offered another, and, if we mistake not, a more competent theory of dreaming, towards the close of the article SLEEP; which see.

VI′GILANT. *a.* (*vigilans*, Latin.) Watchful; circumspect; diligent; attentive (*Hooker*).

VI′GILANTLY. *ad.* Watchfully; attentively; circumspectly (*Hayward*).

VIGNOLE (James Barozzio), an architect, born at Vignole, 1507. He was employed by Francis I. in the construction of several splendid edifices, after which he returned to Italy to finish the palace of cardinal Farnese. He died 1573, aged 66. He wrote a treatise on the five orders of architecture, in Italian, 3 vols. 4to. and another, sur la perspective pratique.

VIGNOLES (Stephen de), better known by the name of la Hire, was a general in the service of Charles VII. and he obliged Bedford to raise the siege of Montargis, and assisted Joan of Arc in the relief of Orleans. He died at Montauban, 1447.

VIGNOLES (Alphonso de), of Aubais in Languedoc, left France on the revocation of the edict of Nantes, and retired to Prussia. He was made director of the Royal Academy of Sciences at Berlin, where he died 1744, aged 95. He wrote the Chronology of the Holy Scriptures, &c. 2 vols. 4to.; Epistola Chronologica, &c.

VIGO, a seaport of Spain, in Galicia, situate on a bay of the Atlantic, defended by a fort on an eminence, and an old castle. It has a good harbour, into which, in 1702, the English and Dutch fleet forced their passage, and made themselves masters of the Spanish plate-fleet, when just arrived from America. In 1719, the English got possession of Vigo, but relinquished it after raising contributions. It stands in a fruitful country, 14 miles W.N.W. of Tuy, and 47 S. of Compostella.

VIGOROSO. (Italian.) In music, a word implying that the movement before which it is placed is to be performed in a bold, energetic style.

VI′GOROUS. *a.* (from *vigor*, Latin.) Forcible; not weakened; full of strength and life (*Atterbury*).

VI′GOROUSLY. *ad.* With force; forcibly; without weakness (*South*).

VI′GOROUSNESS. *s.* (from *vigour.*) Force; strength (*Taylor*).

VI′GOUR. *s.* (*vigor*, Latin.) 1. Force; strength (*Milton*). 2. Mental force; intellectual ability. 3. Energy; efficacy (*Blackmore*).

VILAINE, a river of France, which rises in the department of Mayenne, passes by Vitre and Rennes, divides the department of Morbihan from that of Lower Loire, and enters the bay of Biscay, below Roche Bernard.

VILE. *a.* (*vil*, French; *vilis*, Latin.) 1. Base; mean; worthless; sordid; despicable (*Shakspeare*). 2. Morally impure; wicked (*Milton*).

VI′LED. *a.* (from *vile*; whence *revile.*) Abusive; scurrilous; defamatory (*Hayward*).

VI′LELY. *ad.* (from *vile.*) Basely; meanly; shamefully (*Shakspeare*).

VI′LENESS. *s.* (from *vile.*) 1. Baseness; meanness; despicableness; worthlessness (*Drayton. Creech*). 2. Moral or intellectual baseness (*Prior*).

VILIFI′ER. *s.* One that vilifies.

To VI′LIFY. *v. a.* (from *vile.*) 1. To debase; to degrade (*Milton*). 2. To defame; to make contemptible (*Addison*).

VILL. *s.* (*ville*, French; *villa*, Latin.) A village; a small collection of houses (*Hale*).

VI′LLA. *s.* (*villa*, Latin.) A country seat (*Pope*).

VILLA FRANCA, a seaport of the county of Nice, with a castle and fort. The harbour is capacious, and the mountains which inclose it extend into the sea like promontories. It was taken by the French in 1705, by the French and Spaniards in 1744, and by the French in 1792. It is three miles E. of Nice.

VILLA FRANCA, a town on the S. coast of St. Michael, one of the Azores, defended by a fort and other works. Opposite this place, half a mile from the shore, is a small island, which has a basin with a narrow entrance, where 50 vessels might anchor in security. It is 16 miles E. by N. of Punta del Guda. Lon. 25. 30 W. Lat. 37. 50 N.

VILLA-FRANCA-DE-PANADES, a town of Spain, in Catalonia. It is surrounded by walls, and seated near the Mediterranean, 18 miles W. of Barcelona, and 20 N.E. of Tarragona. Lon. 1. 55 E. Lat. 41. 26 N.

VILLA-HERMOSA, a town of New Spain, in the province of Tabasco, seated on the river Tabasco, 40 miles S. of the bay of Campeachy, and 50 N.E. of Chiapa. Lon. 94. 5 W. Lat. 17. 45 N.

VILLA-JOIOSA, or JOYSA, a town of Spain, in Valencia, on the coast of the Mediterranean, 18 miles E.N.E. of Alicant, and 24 S. of Gandia. Lon. 0. 15 E. Lat. 38. 42 N.

VILLA-NOVA-DA-CERVERA, a town of Portugal, in the province of Entre-Douero-e-Minho, situate on the Minho, near its mouth, 27 miles N.N.W. of Braga, and 45 N. of Oporto. Lon. 8. 40 W. Lat. 41. 55 N.

VILLA-NOVA-DE-PORTO, a town of Portugal, in the province of Entre-Douero-e-Minho, seated on the river Douero, opposite Oporto (on which it depends), and defended by several forts. It contains about 3000 inhabitants.

VILLA-NOVA-DI-PORTIMAO, a seaport of

Portugal, in the province of Algarva. The town is fortified, and defended by two forts. It is nine miles E.N.E. of Lagos, and 42 W. of Tavira. Lon. 8. 41 W. Lat. 37. 5 N.

Villa-Nuova-d'Asti, a town of Piedmont, in the county of Asti, 10 miles E. of Turin. Lon. 7. 59 E. Lat. 45. 50 N.

Villa-Panda, a town of Spain, in Leon, with an arsenal, and a palace belonging to the constable of Castile. It is 26 miles N. of Toro. Lon. 5. 0 W. Lat. 42. 5 N.

Villa-Real, a town of Portugal, in the province of Tra-los-Montes, and capital of Comarca. It is seated at the confluence of the Corgo and Ribera, 15 miles N.E. of Lamego, and 45 S.E. of Braga. Lon. 7. 20 W. Lat. 41. 9 N.

Villa-Rica, a seaport of New Spain, in the audience of Mexico and province of Tlascala, seated on the gulf of Mexico, 200 miles E. of Mexico. Lon. 97. 15 W. Lat. 19. 20 N.

Villa-Rica, a town of Chili, seated on the lake Malabaugen, 62 miles from the Pacific ocean. Lon. 72. 41 W. Lat. 39. 15 S.

Villa-Viciosa, a fortified town of Portugal, in Alentejo, with an old castle, and a palace where the dukes of Braganza formerly resided. In the suburb is an ancient temple, originally built to the honour of Proserpine. The soil about this town is extremely fertile, and there are quarries of fine green marble. It sustained a famous siege against the Spaniards, in 1667, which occasioned a battle in a neighbouring plain, the event of which placed the crown of Portugal on the head of the duke of Braganza. It is 16 miles S.W. of Elvas, and 83 S.E. of Lisbon. Lon. 7. 16. W. Lat. 38. 36 N.

Villa-Viciosa, a seaport of Spain, in Asturia d'Oviedo, seated on the bay of Biscay, 22 miles N.E. of Oviedo. Lon. 5. 24 W. Lat. 43. 22 N.

Villa-Viciosa, a town of Spain, in New Castile. Here, in 1710, general Staremberg defeated the French and Spaniards under the duke of Vendome, although they were twice his number; but, from want of provisions, he was obliged to leave to the vanquished all the advantages of a complete victory, which, accordingly, they ascribed to themselves. Villa-Viciosa is six miles N.E. of Brihuega, and 49 N.E. of Madrid.

VILLAC, a town of Germany, in the duchy of Carinthia, belonging to the bishop of Bamberg, with a castle. It carries on a great trade with the Venetians; and near it are the baths of Toplitz. It is seated at the confluence of the Drave and Geil, surrounded by mountains, 12 miles S.W. of Clagenfurt, and 88 N.E. of Brixen. Lon. 14. 3 E. Lat. 46. 50 N.

VI′LLAGE. *s.* (*village*, French.) A small collection of houses, less than a town (*Pope*).

VI′LLAGER. *s.* (from *village.*) An inhabitant of a village (*Locke*).

VI′LLAGERY. *s.* (from *village.*) District of villages (*Shakspeare*).

VI′LLAIN. *s.* (*vilain*, French; *villanus*, low Latin.) 1. One who held by a base tenure (*Davies*). 2. A wicked wretch (*Clarendon*).

VI′LLANAGE. *s.* (from *villain.*) 1. The state of a villain; base servitude. (See Villenage.) 2. Baseness; infamy (*Dryden*).

VILLANELLA. The air of an old rustic dance, the time of which was gay and brisk, and the measure strongly marked. The subject or melody was first played in a plain style, and then embellished with variations.

To VI′LLANIZE. *v. a.* (from *villain.*) To debase; to degrade; to defame (*Bentley*).

VI′LLANOUS. *a.* (from *villain.*) 1. Base; vile; wicked. 2. Sorry; worthless (*Shakspeare*).

VI′LLANOUSLY. *ad.* (from *villanous.*) Wickedly; basely (*Knolles*).

VI′LLANOUSNESS. *s.* (from *villanous.*) Baseness; wickedness.

VI′LLANY. *s.* (from *villain.*) 1. Wickedness; baseness; depravity; gross atrociousness (*Shakspeare*). 2. A wicked action; a crime (*Dryden*).

VILLARIA, in botany, a genus of the class dioecia, order pentandria. Calyx five-parted; petals five. Female: style one; berry three-celled; seeds solitary. Its native place not known.

VILLARS (Andrew de Brancas de), a general who espoused the interests of the league against Henry IV. He was afterwards gained over by Sully, and when taken prisoner at Dourlens by the Spaniards, 1595, he was basely murdered.

Villars (Louis Hector, marquis and duke of), peer of France, was born at Moulins, 1653. He distinguished himself on the Rhine, at the siege of Maestricht, at the battle of Senef, and on various occasions. At the peace of Ryswick he went ambassador to Vienna, and when afterwards placed at the head of the French armies, he defeated the prince of Baden, and gained the battle of Hochstet; but was at last routed and dangerously wounded at the battle of Malplaquet, 1709. He afterwards regained his reputation at Denay, and by the fall of Douay, Quesnoy, &c. and he assisted in the establishment of peace at Radstadt, 1714. After the death of Louis XIV. he supported the administration of Orleans, and in 1733, when a new war broke out, he commanded the French armies in Italy. He took Pisighitone; but soon afterwards fell ill, and died at Turin in 1734, aged 82.

VILLENAGE, in law. The folk-land or estates held in villenage, was a species of tenure neither strictly feodal, Norman, or Saxon, but mixed and compounded of them all; and which also, on account of the heriots that usually attend it, may seem to have somewhat Danish in its composition. Under the Saxon government there were, as sir William Temple speaks, a sort of people in a condition of downright servitude, used and employed in the most servile works, and belonging, both they, their children, and effects, to the lord of the soil, like the rest of the cattle or stock upon it.

These seem to have been those who held what was called the *folk-land*, from which they were removeable at the lord's pleasure. On the arrival of the Normans here, it seems not improbable, that they, who were strangers to any other than a feodal state, might give some sparks of enfranchisement to such wretched persons as fell to their share, by admitting them, as well as others, to the oath of fealty, which conferred a right of protection, and raised the tenant to a kind of estate superior to downright slavery, but inferior to every other condition. This they called *villenage*, and the tenants *villeins*.

These villeins, belonging principally to lords of manors, were either villeins *regardant*, that is, annexed to the manor or land; or else they were *in gross*, or at large, that is, annexed to the person of the lord, and transferrable by deed from one owner to another. They could not leave their lord without his permission; but, if they ran away, or were purloined from him, might be claimed and recovered by action, like beasts or other chattels. They held, indeed, small portions of land by way of sustaining themselves and families: but it was at the mere will of the lord, who might dispossess them whenever he pleased; and it was upon villein services, that is, to carry out dung, to hedge and ditch the lord's demesnes, and any other the meanest offices: and their services were not only base, but uncertain, both as to their time and quantity.

A villein could acquire no property either in lands or goods: if he purchased either, the lord might seize them to his own use, unless he contrived to dispose of them again before the lord had seized them, for the lord had then lost his opportunity.

In many places also a fine was payable to the lord, if the villein presumed to marry his daughter to any one without leave from the lord: and, by the common law, the lord might also bring an action against the husband for damages in thus purloining his property. For the children of villeins were also in the same state of bondage with their parents; whence they were called in Latin *nativi*, which gave rise to the female appellation of a villein, who was called a *neife*. In case of a marriage between a freeman and a neife, or a villein and a freewoman, the issue followed the condition of the father, being free if he was free, and villein if he was villein; contrary to the maxim of the civil law, that *partus sequitur ventrem*. But no bastard could be born a villein, because by another maxim of our law he is *nullius filius*; and as he can gain nothing by inheritance, it were hard that he should lose his natural freedom by it. The law, however, protected the persons of villeins against atrocious injuries of the lord: for he might not kill or maim his villein, though he might beat him with impunity.

Villeins might be enfranchised by manumission. In process of time they gained considerable ground on their lords; and, in particular, strengthened the tenure of their estates to that degree, that they came to have in them an interest in many places full as good, in others better, than their lords. Hence arose

VILLENAGE (Privileged). The tenants of the lands under the crown were not all of the same order or degree. Some of them, as Britton testifies, continued for a long time pure and absolute villeins, dependent on the will of the lord; and common copyholders in only a few points. Others were in a great measure enfranchised by the royal favour, being only bound in respect of their lands to perform some of the better sort of villein-services: but those determinate and certain; as, to plough the king's land for so many days, to supply his court with such a quantity of provisions, and the like; all of which are now changed into pecuniary rents: and in consideration hereof they had many immunities and privileges granted to them; as, to try the right of their property in a peculiar court of their own, called a court of ancient demesne, by a peculiar process, denominated a writ of right close: not to pay toll or taxes; not to contribute to the expences of knights of the shire; not to be put on juries, and the like.

These tenants, therefore, though their tenure be absolutely copyhold, yet have an interest equivalent to a freehold: for though their services were of a base and villenous original, yet the tenants were esteemed in all other respects to be highly privileged villeins; and especially for that their services were fixed and determinate, and that they could not be compelled (like pure villeins) to relinquish those tenements at the lord's will, or to hold them against their own: *et ideo* (says Bracton) *dicuntur liberi*.

Lands holding by this tenure are therefore a species of copyhold, and as such preserved and exempted from the operation of the statute of Charles II. Yet they differ from common copyholds, principally in the privileges before mentioned; as also they differ from freeholders by one especial mark and tincture of villenage, noted by Bracton, and remaining to this day; viz. that they cannot be conveyed from man to man by the general common law conveyances of feoffment and the rest; but must pass by surrender to the lord or his steward, in the manner of common copyholds; yet with this difference, that, in the surrenders of these lands in ancient demesne, it is not used to say, "to hold at the will of their lord," in their copies; but only, "to hold according to the custom of the manor."

VI'LLI. *s.* (Latin.) In anatomy, are the same as fibres; and in botany, small hairs like the grains of plush or shag, with which some trees do abound (*Quincy*).

VILLIERS (George), the celebrated duke of Buckingham, was born at Brookesby, in Leicestershire, in 1592. After having spent three years in France, his mother resolved to carry him to court, concluding, that a young gentleman of his fine person could not fail of making his fortune under James I. The king being present at a play acted by the Cambridge scholars, it was contrived that Villiers should appear, and the king no sooner cast his eyes upon him than he became fascinated: for, says lord Clarendon, "though he was a prince of more learning and knowledge than any other of that age, and really delighted more in books and in the conversation of learned men, yet, of all wise men living, he was the most delighted with handsome persons and fine clothes." Thus he conceived such a liking to the person of Villiers, that he "resolved to make him a masterpiece, and to mould him platonically to his own idea." The king's late favourite, the earl of Somerset, was immediately discarded, and Villiers, soon after his first appearance at court, was made cup-bearer to his majesty. In a few weeks being knighted, without any other qualification, he was made a gentleman of the bed-chamber, and knight of the garter. In a short time he was made a baron, a viscount, an earl, and a marquis; he became lord high admiral of England, lord warden of the Cinque-ports, master of the horse, and entirely disposed of the favours of the king, in conferring all the honours and all the offices of the three kingdoms. In which, being more guided by appetite than judgment, he exalted almost all his own numerous family and dependents, many of whom had no other merit than their alliance to him. On the succession of Charles, in 1625, the duke continued in the same degree of favour, but he had lost all confidence with the parliament. Votes and remonstrances passed against him as an enemy of the public; and his ill management was made the ground of the refusal to give the king a supply. The duke caused this and the next parliament to be quickly dissolved, set on foot new projects for raising money: and, in short, he said and did every thing with passion and violence. A war having been declared against France, he took the command at the unfortunate descent upon the isle of Rhée, in which the flower of the army was lost. Having returned to England, and repaired the fleet and the army, he was about to transport himself to the relief of Rochelle, which was then besieged by the cardinal Richelieu, and was at Portsmouth for that purpose, when he was assassinated by Felton, on the 23d of August, 1628.

Villiers (George), duke of Buckingham, son of the preceding, was born in 1627. Having completed his studies at Cambridge, he went abroad, and did not return till after the breaking out of the civil wars, when, the king being at Oxford, his grace repaired thither, was presented to his majesty, and entered into Christ-church college. Upon the decline of the king's cause he attended prince Charles to Scotland, and was with him at the battle of Worcester, in 1651; after which, making his escape beyond sea, he again joined him, and was soon after made knight of the garter. Desirous, however, of retrieving his affairs, he came privately to England, and in 1657 married Mary, the daughter and sole heir of Thomas lord Fairfax, through whose interest he recovered the greatest part of the estate he had lost. After the restoration he was made one of the lords of the bed-chamber, called to the privy council, and appointed lord lieutenant of Yorkshire, and master of the horse. All these he lost in 1666, being detected in a conspiracy against the government, but upon humble submission was again taken into favour, being restored both to the privy council and bed-chamber. In 1671 he was installed chancellor of the university of Cambridge, and sent ambassador to France. He died in 1688. His poems, which indeed are not very numerous, are deemed good of their kind; but his principal work is a comedy called the Rehearsal, which is a piece of great originality.

VILLOSE. Villosus. In botany. Pilis mollibus pubescens. Pubescent or covered with soft hairs. As the stem in tomex and rhus. The leaf in ulex europæus or furze, primula villosa, &c. The stigma.

VILLUS, in botany. (from μαλλος, or *a velando*, or *a vellendo*; or from ιλλώ for ειλω; or from *pilus*; or from *vinnus*, cincinnus molliter flexus; such is the uncertainty of derivation.) It is interpreted pili collecti, ac flocci vestium; collected hairs, the pile or nap of cloth. In Linnéus's idea it seems to be soft close hairs, forming a fine nap or pile like velvet.

VIMEN, in botany. (*a viendo*, from binding.) Virgultum lentum ac flexile, ad ligandum aptum. A bending twig or wythe: slender and flexible, fit for binding.

VIMINARIA. Rush-broom. In botany, a genus of the class and order decandria, monogynia. Calyx angular, simple, quinquefid; corol papilionaceous; style capillary; stigma simple, acute; legume coriaceous, one-seeded.

One species, V. denudata, leafless rush-broom. The rush-like branches, or, more properly speaking, the long petioles, of this shrub have been mistaken both by Shrader and Wildenow for the leaves, of which, in its more advanced stages, it is entirely destitute. The pod, when nearly ripe, contains only one seed. A native of New Holland, in the neighbourhood of Port Jackson, and was one of the first plants imported by seed from that country. Thus propagated it ripens with us, and may be treated as a somewhat hardy green-house shrub. See Botany, Pl. CLXXXIII.

VIMINEOUS. *a.* (*vimineus*, Latin.) Made of twigs (*Prior*).

VINCA. Perriwinkle. In botany, a genus of the class pentandria, order monogynia. Corol twisted, salver-shaped, inferior; follicles two, erect; seeds naked. Five species: three natives of the West Indies or America; two common to our own hedges and woods. The three following are cultivated.

1. V. rosea. Madagascar perriwinkle.
2. V. major. Great perriwinkle.
3. V. minor. Small perriwinkle.

The last is employed medicinally under the name of vinca pervinca. It possesses bitter and adstringent virtues, and is said to be efficacious in stopping nasal hæmorrhages when bruised and put into the nose. Boiled it forms a useful adstringent gargle in common sore throat, and it is given by some in phthisical complaints.

VINCENT (Cape St.), the S.W. promontory of Portugal, 25 miles W. by S. of Lagos. Lon. 9. 0 W. Lat. 37. 3 N.

VINCENT (St.), one of the Windward Caribbee islands, in the West Indies, 55 miles W. of Barbadoes. It is inhabited by Caribs, a warlike race, between whom and the aborigines of the large islands there is a manifest distinction. They are conjectured to have been originally a colony from North America; their fierce manners approaching nearer to those of the original natives of that continent than they do to that of South America, and their language also having some affinity to that spoken in Florida. In their wars they preserve their ancient practice of destroying all the males, and preserving the women either for servitude or for breeding. St. Vincent was long a neutral island; but, at the peace of 1763, the French agreed that the right to it should be vested in the English. The latter, soon after, engaged in a war against the Caribs, on the windward side of the island, who were obliged to consent to a peace, by which they ceded a large tract of land to the crown. The consequence of this was, that in 1779, they greatly contributed to the reduction of this island by the French, who, however, restored it in 1783. In 1795, the French landed some troops, and again instigated the Caribs to an insurrection, which was not subdued for several months. St. Vincent is 24 miles long and 18 broad. It is extremely fertile for the raising of sugar and indigo; and here the bread-fruit trees, brought from Otaheite, thrive remarkably well. Kingston is the capital.

VINCENT (St.), one of the Cape Verd islands, 12 miles long and three broad, and uninhabited. On the N.W. side of it is a good bay, where ships may wood and water, and wild goats may be shot. Lon. 25. 30 W. Lat. 17. 30 N.

VINCENT (St.), a province of Brasil, lying under the tropic of Capricorn, and the most southern one except that of Del Rey. The capital, of the same name, is an inconsiderable town, having only about 60 houses, and the harbour will not admit large vessels. It is situate on an island, in the bay of Santos, 190 miles S.W. of St. Sebastian. Lon. 46. 28 W. Lat. 24. 15 S. See SANTOS.

VINCENT (St.), a town of Spain, in Asturias, seated on the bay of Biscay, nine miles W. by S. of Santillana.

VINCETOXICUM. (from *vinco*, to overcome, and *toxicum*, poison; so named from its supposed virtues of resisting and expelling poisons.) Hermidinaria. Asclepias. Swallow wort. Tame poison. The root of this plant, asclepias vincetoxicum of Linnéus, smells when fresh somewhat of valerian; chewed it imparts at first a considerable sweetness, which is soon succeeded by an unpleasant subacrid bitterness. It is given in some countries in the cure of glandular obstructions.

VINCI (Leonardo da), an illustrious Italian painter descended from a noble Tuscan family, was born in the castle of Vinci, near Florence, in 1445. He was placed under Andrea Verochia, a celebrated painter in that city, but soon surpassed him and all his predecessors so much, as to be reputed the master of the third or golden age of modern painting. But his studies were far from terminating here; no man's genius was more universal; he applied himself to arts, to literature, and to the accomplishments of the body; and he excelled in every thing which he attempted. Lewis Sforza, duke of Milan, prevailed on him to be director of the academy for architecture he had just established, where Leonardo soon banished all the Gothic fashions, and reduced every thing to the happy simplicity of the Greek and Roman style. By the duke's order, he constructed the famous aqueduct that supplies the city of Milan with water. This canal goes by the name of Mortesana, being above 200 miles in length, and conducts the water of the river Adda quite to the walls of the city. In 1479 he was desired to construct some new device for the entertainment of Louis XII. of France, who was then to make his entrance into Milan. Leonardo accordingly made a very curious automaton in the form of a lion, which marched out to meet the king, reared up on its hinder legs before him, and opening its breast, displayed an escutcheon with fleurs de lys quartered on it. The disorders of Lombardy, with the misfortunes of his patrons, the Sforzi, obliging Leonardo to quit Milan, he retired to Florence, where he flourished under the Medici; here he raised the envy of Michael Angelo, who was his contemporary; and Raphael, from the study of his works, acquired his best manner of designing. At length, on the invitation of Francis I. he removed to France when above 70 years of age, where the journey and change of climate threw him into his last sickness: he languished for some months at Fontainbleau, where the king came frequently to see him; and one day rising up in his bed to acknowledge the honour done him, he fainted, and Francis supporting him, Leonardo died in his arms. His death happened in 1520. Some of his paintings are to be seen in England and other countries, but the greatest part of them are in Florence and France. He composed a great number of discourses on curious subjects, but none of them have been published but his treatise on the Art of Painting.

VI'NCIBLE. *a.* (from *vinco*, Latin.) Conquerable; superable (*Norris*).

VI'NCIBLENESS. *s.* (from *vincible.*) Liableness to be overcome.

VI'NCTURE. *s.* (*vinctura*, Latin.) A binding.

VINCULUM, in algebra, a mark or character, either drawn over, or including, or some other way accompanying a factor, divisor, dividend, &c. when it is compounded of several letters, quantities, or terms, to connect them together as one quantity, and shew that they are to be multiplied, or divided, &c. together.

Vieta first used the bar or line over the quantities, for a vinculum, thus $\overline{a+b}$; and Albert Girard the parenthesis thus $(a+b)$. Thus $\overline{a+b} \times c$, or $(a+b) \times c$, denotes the product of c, and the sum $a+b$ considered as one quantity. Also $\sqrt{a+b}$, or $\sqrt{}(a+b)$, denotes the square root of the sum $a+b$. Sometimes the mark : is set before a compound factor, as a vinculum, especially when it is very long, or an infinite series; thus $3a \times : 1 - 2x + 3x^2 - 4x^3 + 5x^5$, &c.

VINDE'MIAL. *a.* (*vindemia*, Lat.) Belonging to a vintage.

To VINDE'MIATE. *v. n.* (*vindemia*, Lat.) To gather the vintage (*Evelyn*).

VINDEMIA'TION. *s.* (*vindemia*, Latin.) Grape-gathering (*Bailey*).

VINDEMIATRIX, or VINDEMIATOR, a fixed star of the third magnitude, in the northern wing of the constellation Virgo.

To VI'NDICATE. *v. a.* (*vindico*, Latin.) 1. To justify; to maintain (*Watts*). 2. To revenge; to avenge (*Pearson*). 3. To assert; to claim with efficacy (*Dryden*). 4. To clear; to protect from censure (*Milton*).

VINDICA'TION. *s.* (*vindication*, French, from *vindicate.*) Defence; assertion; justification (*Broome*).

VINDI'CATIVE. *a.* (from *vindicate.*) Revengeful; given to revenge (*Sprat*).

VINDICA'TOR. *s.* (from *vindicate.*) One who vindicates; an assertor (*Dryden*).

VI'NDICATORY. *a.* (from *vindicator.*) 1. Punitory; performing the office of vengeance (*Bramhall*). 2. Defensory; justificatory.

VINDI'CTIVE. *a.* (from *vindicta*, Latin.) Given to revenge; revengeful (*Dryden*).

VINE. *s.* (*vinea*, Lat.) The plant that bears the grape. See VITIS.

VINE-FRETTER, in entomology. See APHIS.

VINEGAR. Under the article ACETIC ACID we have observed that this acid is employed in three different states, which have been distinguished from each other by peculiar names. When first prepared, it is called *vinegar*; when purified by distillation, it assumes the name of *distilled vinegar*, or *acetous acid*, as it is termed by the chemists; and when concentrated as much as possible, by peculiar processes, it is called *radical vinegar*, or by the chemists *acetic acid.*

Vinegar was known many ages before the discovery of any other acid, those only excepted which exist ready formed in vegetables. It is mentioned by Moses; and appears, indeed, to have been in common use among the Israelites and other eastern nations at a very early period. It is a liquor of an agreeable smell, a pleasant and strongly acid taste, and of a hue varying from light red to brown straw colour; and is prepared by fermenting any substance or compound which has already undergone the spirituous fermentation. Vinegar, therefore, may be made immediately from any wine, malt liquor, cyder, &c.; or from the juice of the grape and other fruits; from infusion of malt, or any saccharine liquid, through the intermedium of vinous fermentation. Both these methods are actually practised with complete success. To make vinegar out of a liquor containing suitable materials, it is only necessary, 1st, to allow some access of air to the vessel in which it is kept; and, 2d, to keep it in a temperature rather higher than that of the atmosphere in this climate, that is to say, about 75° to 80°. It is also almost essential, where a liquor already fermented is employed, to add a portion of yeast, or any other ferment; for though any fermented liquor, if kept in a moderate temperature in an open vessel, will spontaneously run sour, or become changed to vinegar; this change is too gradual to produce this acid in perfection, and the first acetified portion turns mouldy before the last has become sour: but where the substance employed has not yet undergone fermentation, the whole process of the vinous and subsequent acetous fermentation will go on uninterruptedly with the same ferment which at first set it in action, which happens, for example, in the making vinegar from malt, or from sugar and water. In this country vinegar is chiefly made from malt. The following is the usual process in London: a mash of malt and hot water is made, which, after infusion for an hour and a half, is conveyed into a cooler, a few inches deep, and thence, when sufficiently cooled, into large and deep fermenting tuns, where it is mixed with yeast, and kept in fermentation for four or five days. The liquor (which is now a strong ale without hops) is then distributed into smaller barrels, set close together in a stoved chamber, and a moderate heat is kept up for about six weeks; during which the fermentation goes on equally and uniformly till the whole is soured. This is then emptied into common barrels, which are set in rows (often of many hundreds) in a field in the open air, the bung-hole being just covered with a tile, to keep off the wet, but to allow a free admission of air. Here the liquor remains for four or five months, according to the heat of the weather, a gentle fermentation being kept up till it becomes perfect vinegar. This is finished in the following way: large tuns are employed, with a false bottom, on which is put a quantity of the refuse of raisins, or other fruit, left by the makers of raisin and other home-made wines, called technically rape. These rape-tuns are worked by pairs; one of them is quite filled with the vinegar from the barrels, and the other only three-quarters full, so that the fermentation is excited more easily in the latter than the former; and every day a portion of the vinegar is laded from one to the other, till the whole is completely finished, and fit for sale. Vinegar, as well as fruit-wines, is often made in small quantity for domestic uses, and the process is by no means difficult. The materials may be either brown sugar and water alone, or sugar with raisins, currants, and especially ripe gooseberries. These should be mixed in the proportions which would give a strong wine, put into a small barrel, which it should fill about three-fourths, and the bung-hole very loosely stopped. Some yeast, or which is better, a toast sopped in yeast, should be put in, and the barrel set in the sun in summer, or a little way from a fire in winter, and the fermentation will soon begin. This should be kept up constant, but moderate, till the taste and smell indicate that the vinegar is complete. It should then be poured off clear, and bottled carefully, and it will keep much better if it be boiled for a minute, cooled, and strained, before bottling.

Vinegar, however, as its name imports, was formerly made in a large way from wine rather than from malt; and this is the material which probably furnishes it in the greatest perfection, and which is solely employed in the wine-countries. It is there prepared by adding wine lees to wine, which excites a new fermentation that is kept up till the whole is changed to vinegar. Any wine will answer the purpose: the best and fullest-bodied wine gives the strongest vinegar, and that which is already soured and injured by keeping may be applied to this use.

As even vinegar, however, is not the ultimate change which a vinous liquor spontaneously assumes, there is a period in the process of the manufacture in which the acid is in its highest degree of strength and perfection, after which, if the process is not stopped, the liquor speedily deteriorates, the acetous acid gradually disappears, and only an offensive, mouldy, watery liquid remains, with scarcely any sourness. It belongs, therefore, to the skill and experience of the manufacturer to know when his vinegar is complete, and fit to be drawn off and closely barrelled. The specific gravity of vinegar varies from 1.0135 to 1.0251, and it differs also in its other properties according to the liquid from which it has been procured. It is very subject to decomposition; but Scheele discovered that if it is made to boil for a few moments, it may be kept afterwards for a long time without alteration. Besides acetic acid and water, vinegar contains several other ingredients, such as mucilage, tartar, a colouring matter, and often also two or more vegetable acids. When distilled at a temperature not exceeding that of boiling water, till about two-thirds of it have passed over, all these impurities are left behind, and the product is pure acid diluted with water.

The acid thus obtained is a liquid as transparent and colourless as water, of a strong acid taste, and an agreeable colour, somewhat different from that of vinegar. In this state, as we have already observed, it is usually called acetous acid, or distilled vinegar. See ACETOUS ACID.

It may be preserved without alteration in close vessels. When exposed to a moderate heat, it evaporates completely, and without undergoing any change in its properties. When exposed to the action of cold, part of it congeals. The frozen portion, which consists almost entirely of water, may be easily separated; and by this method the acid may be obtained in a high degree of concentration. The more concentrated the acid is, the greater is the cold necessary to produce congelation. Mr. Lowitz has ascertained that the acid itself, how much soever it may be concentrated, crystallizes or congeals at the temperature of 22°.

When acetat of copper, reduced to powder, is put into a retort and distilled, there comes over a liquid at first nearly colourless, and almost insipid, and afterwards a highly concentrated acid. The distillation is to be continued till the bottom of the retort is red-hot. What remains in it then is only a powder of the colour of copper. The acid product, which should be received in a vessel by itself, is tinged green by a little copper which passes along with it; but when distilled over again in a gentle heat, it is obtained perfectly colourless and transparent. The acid thus procured is exceedingly pungent and concentrated, and constitutes what we have already noticed by the name of radical vinegar, or vinegar of Venice.

VI'NEYARD. *s.* (ƿınᵹeaꞃꝺ, Saxon.) A ground planted with vines (*Shakspeare*).

VINGORLA, a Dutch settlement in the peninsula of Hindustan, on the coast of Concan, a little N. of Goa. Lon. 73. 22 E. Lat. 15. 57 N.

VINGORLA ROCKS, rocks lying about seven miles from the coast of Concan, in the peninsula of Hindustan, and 10 miles S.S.W. of the island of Melundy, or Sunderdoo. They are possessed by the Malwaans, a piratical tribe. Lon. 73. 16 W. Lat. 15. 52 N.

VINGT-UN, in card-playing, a game that has a near resemblance to quinze, so denominated from the number of points by which the game is won. It may be played by two or more persons: and as the deal is advantageous, and often continues long with the same person, it is usual to determine it at the commencement by the first ace turned up, or some other mode previously agreed upon.

The cards must all be dealt out in succession, unless a natural vingt-un occurs, and in the mean time the pone, or youngest-hand, should collect those that have been played, and shuffle them together ready for the dealer against the period when he shall have distributed the whole pack. The dealer is first to give two cards, by one at a time, to each player, including himself, then to ask every person in rotation, beginning with the eldest hand on the left, whether he stands or chuses another card, which if required, must be given from off the top of the pack, and afterwards another, or more if desired, till the points of the additional card or cards added to those dealt, exceed or make 21 exactly, or such a number less than 21 as may be judged proper to stand upon; but when the points exceed 21, then the cards of that individual player are to be thrown up directly, and the stake to be paid to the dealer, who also is in turn entitled to draw additional cards, and on taking a vingt-un is to receive double stakes from all who stand the game, except such other players likewise having 21, between whom it is thereby a drawn game: and when any adversary has a vingt-un, and the dealer not, then the opponent so having 21 wins double stakes from him; in other cases, except a natural vingt-un happens, the dealer pays single stakes to all whose numbers under 21 are higher than his own, and receives from those who have lower numbers; but nothing is paid or received by such players as have similar numbers to the dealer; and when the dealer draws more than 21, he is to pay to all who have not thrown up.

Twenty-one, whensoever dealt in the first instance, is styled a natural vingt-un, should be declared immediately, and entitles the possessor to the deal, besides double stakes from all the players, unless there shall be more than one natural vingt-un, in which case the younger hand or hands so having the same are excused from paying to the eldest, who takes the deal of course.

N. B. An ace may be reckoned either as 11 or 1: every court-card is counted as 10, and the rest of the pack according to their points.

The odds of this game merely depend upon the average quantity of cards likely to come under or exceed 21; for example, if those in hand make 14 exactly, it is 7 to 6 that the one next drawn does not make the number of points above 21, but if the points be 15, it is 7 to 6 against that hand; yet it would not therefore always be prudent to stand at 15, for as the ace may be calculated both ways, it is rather above an even bet that the adversary's two first cards amount to more than 14. A natural vingt-un may be expected once in seven coups when two, and twice in seven when four people play, and so on according to the number of players.

VI'NNEWED, or VINNEY. *a.* Mouldy.

VI'NOUS. *a.* (from *vinum*, Lat.) Having the qualities of wine; consisting of wine.

VI'NTAGE. *s.* (*vinage*, Fr.) The produce of the vine for the year; the time in which grapes are gathered (*Bacon. Waller*).

VI'NTAGER. *s.* (from *vintage.*) He who gathers the vintage (*Ainsworth*).

VINTIMIGLIA, a town of Italy, in the republic of Genoa, with a bishop's see, a small harbour, and a strong castle on a high rock. It has been often taken and retaken, and is seated on the Mediterranean, at the mouth of the Rotta, 20 miles E.N.E. of Nice, and 70 S.W. of Genoa. Lon. 7. 37 E. Lat. 43. 53 N.

VI'NTNER. *s.* (from *vinum.*) One who sells wine (*Howel*).

VI'NTRY. *s.* The place where wine is sold.

VINUM. Wine is the juice of the grape altered by fermentation; its variety depending chiefly on the proportion of sugar contained in the must, and in the manner of its fermentation. It is employed in medicine, under the Latin name *vinum*, as a menstruum for extracting the virtues of a variety of medicinal materials. The chief forms are the following.

V. ALOES. A stomachic purgative, calculated for the aged and phlegmatic, who are not troubled with the piles.

V. ANTIMONII. In small doses this proves alterative and diaphoretic, and a large dose emetic; in which last intention it is the common emetic for children.

V. ANTIMONII TARTARIZATI. This may be given in all cases where the tartar emetic is indicated.

V. FERRI. Steel wine is an useful form for administering the iron.

V. GENTIANÆ COMPOSITUM. A good stomachic bitter.

V. IPECACUANÆ. In small doses this preparation proves diaphoretic, and nauseates; in larger doses it is emetic.

V. NICOTIANÆ. Dropsical diseases, obstinate affections of the skin, and asthma, are said to be relieved by a judicious administration of this wine, which is narcotic and diuretic.

V. RHEI. A stomachic, adstringent, and aperient.

V. OPII. A warmer and somewhat weaker laudanum than the tincture of opium. In the present pharmacopœia of the London college, two or three of the preceding are omitted, and the antimonial wine is exchanged for a solution of this material in water.

VIOL. A stringed musical instrument resembling in shape and tone the violin, of which it was the origin; that impressive and commanding instrument being little more than an improvement of the old viol. This instrument formerly consisted of five or six strings, the tones of which were regulated by their being brought by the fingers into contact with the frets with which the neck was furnished. The viol was for a long while in such high esteem as to dispute the pre-eminence with the harp, especially in the early times of music in France; and, indeed, being reduced to four strings, and stript of the frets with which viols of all kinds seem to have been furnished till the sixteenth century, it still holds the first place among treble instruments, under the denomination of violin. (*Busby*).

VIOL-SHAPED, in botany. See PANDURÆFORM.

VIOLA. Violet. In botany, a genus of the class pentandria, order monogynia. Calyx five-leaved, lengthened out at the base; petals five, irregular, the lowermost spurred behind; anthers slightly cohering; capsule superior, one-celled, three-valved. Forty species, scattered over Europe, the West Indies, and America; a few over India; six common to our own country. They are thus subdivided.

A. Without stem.
B. Caulescent.
C. Stipules pinnatifid; stigma cup-shaped.
D. Flowers erect; not reversed.

The following are cultivated.

1. V. odorata. Sweet violet. Leaves hearted, notched; flowers deep purple, single; sci-

ous creeping. It is found in our own hedges. The recent flowers of this plant are received into the catalogues of the Materia Medica. They have an agreeable sweet smell, and a mucilaginous bitterish taste. Their virtues are purgative or laxative, and by some they are said to possess an anodyne and pectoral quality. The officinal preparation of this flower is a syrup, which, to young children, answers the purpose of a purgative; it is also of considerable utility in many chemical inquiries, to detect an acid or an alkali; the former changing the blue colour to a red, and the latter to a green.

There is a variety of this species with white flowers.

2. V. canina. Dog-violet. Stem at length ascending, channelled; leaves oblong-heart-shaped; calyxes acute. Found in our copses. The root of this plant possesses the power of vomiting and purging the bowels; with which intention a scruple of the dried root must be exhibited. It appears, though neglected in this country, worthy of the attention of physicians.

3. V. palmata. Palmated violet.

4. V. pedata. Multifid violet.

5. V. tricolor. Heart's-ease. Pansy. Stem angular, diffuse; leaves oblong, tooth-crenate; stipules lyre-pinnatifid.

This well known beautiful little plant grows in corn fields, waste and cultivated grounds, flowering all the summer months. It varies much by cultivation; and by the vivid colouring of its flowers often becomes extremely beautiful in gardens, where it is distinguished by various names. To the taste, this plant in its recent state is extremely glutinous, or mucilaginous, accompanied with the common herbaceous flavour and roughness. By distillation with water, according to Haase, it affords a small quantity of odorous essential oil, of a somewhat acrid taste. The dried herb yields about half its weight of watery extract, the fresh plant about one-eighth. Though many of the old writers on the materia medica represent this plant as a powerful medicine in epilepsy, asthma, ulcers, scabies, and cutaneous complaints, yet the viola tricolor owes its present character as a medicine to the modern authorities of Starick, Metzger, Haase, and others, especially as a remedy for the crusta lactea. For this purpose, a handful of the fresh herb, or half a dram of it dried, boiled two hours in milk, is to be strained and taken night and morning. Bread, with this decoction, is also to be formed into a poultice and applied to the part. By this treatment it has been observed, that the eruption during the first eight days increases, and that the urine, when the medicine succeeds, has an odour similar to that of cats; but on continuing the use of the plant a sufficient time, this smell goes off, the scabs disappear, and the skin recovers its natural purity. Instances of the successful exhibition of this medicine, as cited by these authors, are very numerous; indeed this remedy, under their management, seems rarely, if ever, to have failed. It appears, however, that Mursinna, Akermann, and Flennig, were less fortunate in the employment of this plant; the last of whom declares, that in the different cutaneous disorders in which he used it, no benefit was derived. Haase, who administered this species of violet in various forms, and large doses, extended its use to many chronic disorders; and from the great number of cases in which it proved successful, we are desirous of recommending it to a further trial in this country.

It is remarkable that Bergius speaks of this plant as a useful mucilaginous purgative, and takes no notice of its efficacy in the crusta lactea or in any other disease.

Viola. A tenor violin. This instrument is similar in its tone and formation to the violin, but its dimensions are somewhat greater, and its compass a fifth lower in the great scale of sounds. Its lowest note is C on the fourth space in the bass. The part it takes in concert is between that of the bass and the second violin.

VI'OLABLE. *a.* (from *violabilis*, Latin.) Such as may be violated or hurt.

VIOLA'CEOUS. *a.* (from *viola*, Lat.) Resembling violets.

To VI'OLATE. *v. a.* (*violo*, Lat.) 1. To injure; to hurt (*Pope*). 2. To infringe; to break any thing venerable (*Hooker*). 3. To injure by irreverence (*Brown*). 4. To ravish; to deflour (*Prior*).

VIOLA'TION. *s.* (*violatio*, Latin.) 1. Infringement or injury of something sacred or venerable (*Addison*). 2. Rape; the act of deflouring (*Shakspeare*).

VIOLA'TOR. *s.* (*violator*, Latin.) 1. One who injures or infringes something sacred (*South*). 2. A ravisher (*Shakspeare*).

VI'OLENCE. *s.* (*violentia*, Lat.) 1. Force; strength applied to any purpose (*Milton*). 2. An attack; an assault; a murder (*Shakspeare*). 3. Outrage; unjust force (*Milton*). 4. Eagerness; vehemence (*Shakspeare*). 5. Injury; infringement (*Burnet*). 6. Forcible defloration.

VI'OLENT. *a.* (*violentus*, Lat.) 1. Forcible; acting with strength (*Milton*). 2. Produced, or continued by force (*Burnet*). 3. Not natural, but brought by force (*Milton*). 4. Assailant; acting by force (*Milton*). 5. Unseasonably vehement (*Hooker*). 6. Extorted; not voluntary (*Milton*).

VI'OLENTLY. *ad.* (from *violent.*) With force; forcibly; vehemently (*Taylor*).

VIOLET, in botany. See Viola.

Violet (Dame's), in botany. See Hesperis.

Violet (Damask), in botany. See Hesperis.

Violet (Dog's tooth), in botany. See Erythronium.

VIOLIN, or Fiddle. A well-known stringed instrument of brilliant tone, and active execution. When, or by what nation, this important and interesting instrument was first invented is not at present known, nor can the form and character of the violin used in England in the time of Chaucer, who mentions it, be exactly ascertained. There is, however, much reason for supposing that from its first introduction it underwent continual alterations and improvements, since even towards the end of the sixteenth century its shape appears to have been vague and undetermined. It has, however, long attained its present excellence, and formed the leading instrument in concert. The four strings of which it consists are tuned in fifths from each other. The pitch of the lowest string is G, under the second ledger line in the treble stave; consequently that of the next is D, under the first line of the stave; the pitch of the next above that, A on the second space; and that of the upper string, E on the fourth space. During the protectorship the violin was in little esteem, and gave way to the rising prevalence of the viol: but at the restoration, viols began to be out of fashion, and violins resumed their former consequence. The antiquity of this instrument has long been a subject of dispute with the learned. It is generally supposed, and with much reason, that no instrument played with the bow was known to the ancients.

VIOLIST, a player on the viol.

VIOLONCELLO. A base violin, containing four strings, the lowest of which is tuned to double C. The strings are in fifths, consequently the pitch of that next the gravest is G gamut; that of the next, D on the third line in the base; and that of the upper string, A on the fifth line.

The violoncello was called the violono till the introduction of the double-base, which assumed that name.

VIOLONO. (Ital.) The name originally given by the Italians and French to the violoncello, but afterwards transferred to the double-bass, to which instrument it is still applied. Its pitch is an octave below that of the violoncello, and its true use is to sustain the harmony; in which application of its powers it has a firm and noble effect.

VIPER, in amphibiology. See COLUBER.

VIPER GRASS. See SCORZONERA.

VIPERA. (*quod vi pariat*; because it was thought that its young eat through the mother's bowels.) The viper or adder. This viviparous reptile, coluber berus of Linnéus, possesses the power of forming a poisonous fluid in little bags near its teeth. The flesh is perfectly innocent, and often taken by the common people against the king's evil, and a variety of disorders of the skin. Experience evinces it to be an inefficacious substance. See COLUBER.

VIPERARIA. See SERPENTARIA VIRGINIANA.

VIPERINA. (from *viper*, a snake; so called from the serpentine appearance of its roots.) See SERPENTARIA VIRGINIANA.

VIPERINA VIRGINEANA. See SERPENTARIA VIRGINEANA.

VI'PERINE. *a.* (*viperinus*, Lat.) Belonging to a viper.

VI'PEROUS. *a.* (*vipereus*, Lat. from *viper.*) Having the qualities of a viper (*Daniel*).

VIPER'S BUGLOS. See ECHIUM.

VIPER'S GRASS. See SCORZONERA.

VIRA'GO. *s.* (Lat.) 1. A female warrior; a woman with the qualities of a man (*Peacham*). 2. It is commonly used in detestation for an impudent turbulent woman.

VIRE, a town of France, in the department of Calvados, with several manufactures of coarse woollen cloths. It is seated on the Vire, 30 miles S.E. of Courances, and 150 W. of Paris. Lon. 0. 45 W. Lat. 48. 48 N.

VIRECTA, in botany, a genus of the class pentandria, order monogynia. Calyx five-toothed, with intermediate teeth; corol funnel-form; stigma two-parted; capsule one-celled, many-seeded, inferior. One species only, a herb of Surinam, with pubescent stem and terminal two-flowered peduncle, the lower flower sessile.

VI'RELAY. *s.* (*virelay, virelai*, Fr.) A sort of little ancient French poem, that consisted only of two rhymes and short verses, with stops (*Dryden*).

VI'RENT. *a.* (*virens*, Latin.) Green; not faded (*Brown*).

VIRGA AUREA. Herba dorea. Consolida saracenica. Golden rod. The leaves and flowers of this plant, solidago virga aurea of Linnéus, are recommended as aperients and corroborants in urinary obstructions, ulcerations of the kidneys and bladder, and cachexies. See SOLIDAGO.

VIRGATE, in botany. (*virga*, a rod, or wand.) A rod-like or wand-like stem or branch. Ramusculus debilibus in æqualibus. Shooting forth slender weak unequal rods or twigs: as in artemisia campestris.

VIRGIL, in Latin Publius Virgilius Maro, the most excellent of all the ancient Roman poets, was born Oct. 15, U. C. 684, in the consulship of Pompey and Crassus, at a village called Andes, not far from Mantua. His father was undoubtedly of low birth and mean circumstances, but by his industry so much recommended himself to his master, that he gave him his daughter, named Maia, in marriage, as a reward of his fidelity. Our poet, discovering early marks of a very fine genius, was sent at twelve years old to study at Cremona, where he continued till his seventeenth year. He was then removed to Milan, and from thence to Naples, being the residence of several teachers of philosophy and polite learning; and applied himself heartily to the study of the best Greek and Roman writers. But physic and mathematics were his favourite sciences, which he cultivated with much care. He learned the Epicurean philosophy under the celebrated Syro. His acquaintance with Varus, his first patron, commenced by his being fellow-student with him under this philosopher. We have no certain knowledge of the time and occasion of Virgil's going to Rome, how his connections with the wits and men of quality began, nor how he was introduced to the court of Augustus.

In the warmth of early youth, he framed a noble design, of writing an heroic poem On the Wars of Rome; but, after some attempts, was discouraged from proceeding, by the roughness and asperity of the old Roman names. He turned himself, therefore, to pastoral; and, being captivated with the beauty and sweetness of Theocritus, was ambitious to introduce this new species of poetry among the Romans. His first performance in this way is supposed to have been written U. C. 709, the year before the death of Julius Cæsar, when the poet was in his 25th year: it is entitled, Alexis. Possibly Palæmon was his second. Mr. Warton places Silenus next; which is said to have been publicly recited on the stage by Cytheris, a celebrated comedian. Virgil's fifth eclogue is composed in allusion to the death and deification of Cæsar. The battle of Philippi in 712 having put an end to the Roman liberty, the veteran soldiers began to murmur for their pay; and Augustus, to reward them, distributed among them the lands of Mantua and Cremona. Virgil was involved in this common calamity, and applied to Varus and Pollio, who warmly recommended him to Augustus, and procured for him his patrimony again. Full of gratitude to Augustus, he composed the Tityrus, in which he introduces two shepherds: one of them, complaining of the distraction of the times, and of the havock the soldiers made among the Mantuan farmers; the other, rejoicing for the recovery of his estate, and promising to honour the person who restored it to him as a god. But our poet's joy was not of long continuance; for, we are told, that when he returned to take possession of his farm, he was violently assaulted by the intruder, and would have certainly been killed by him, if he had not escaped by swimming hastily over the Mincio. Upon this unexpected disappointment, melancholy and dejected, he returned to Rome, to renew his petition; and, during his journey, seems to have composed his ninth eclogue. The celebrated eclogue, entitled Pollio, was composed in 714, upon the following occasion. The consul Pollio on the part of Antony, and Mæcenas on the part of Cæsar, had made up the differences between them; by agreeing, that Octavia, half-sister to Cæsar, should be given in marriage to Antony. This agreement caused an universal joy; and Virgil, in this eclogue, testified his. It is dedicated to Pollio by name, who was at that time consul; and therefore we are sure of the date of this eclogue, as it is known that he enjoyed that high office in 714. In 715, Pollio was sent against the Parthini, a people of Illyricum; and during this expedition, Virgil addressed to him a beautiful eclogue, called Pharmaceutria. His tenth and last eclogue is addressed to Gallus.

Being in his 34th year, he retired to Naples; and laid the plan of his inimitable Georgics, which he undertook at the entreaties of Mæcenas, to whom he dedicated them. They are divided into four books; and the subjects of them are particularly specified in the four first lines of the first book. Corn and ploughing are the subject of the first book, vines of the second, cattle of the third, and bees of the fourth.

He is supposed to have been in his 45th year when he began to write the Æneid. This poem may very well be considered as a political work. Virgil wrote in defence of the new usurpation of the state; and all that can be offered in his vindication, which however seems enough, is, that the Roman government could no longer be kept from falling into a single hand, and that the usurper he wrote for was as good a one as they could have. But, whatever may be said of his motives for writing it, the poem has in all ages been highly applauded. Augustus was eager to peruse it before it was finished; and entreated him by letters to communicate it. The poet at length complied, and read himself the sixth book to the emperor, when Octavia, who had just lost her son Marcellus, the darling of Rome, and adopted son of Augustus, made one of the audience. Virgil had artfully inserted a beautiful lamentation for the death of young Marcellus; upon hearing which, Octavia could bear no more, but fainted away, overcome with surprise and sorrow. When she recovered, she made the poet a present of ten sesterces for every line, which amounted in the whole to above 2000*l*.

The Æneid being brought to a conclusion, but not to the perfection our author intended to give it, he resolved to travel into Greece, to correct and polish it at leisure. Augustus, returning victorious from the East, met with Virgil at Athens, who thought himself obliged to attend the emperor to Italy, but the poet was suddenly seized with a fatal distemper, which, being increased by the agitation of the vessel, put an end to his life as soon as he landed at Brundusium. He died September 22d, in his 52d year. He had ordered in his will, that the Æneid should be burnt as an unfinished poem; but Augustus forbade it, and had it delivered to Varius and Tucca, with the strictest charge to make no additions, but only to publish it correctly. He died with such steadiness and tranquillity, as to be able to dictate his own epitaph. His bones were carried to Naples, according to his earnest request; and a monument was erected at a small distance from the city.

The genuine and undisputed works of this poet are ten Eclogues, or Bucolics, four books of Georgics, and the Æneid in twelve books. The Culex, the Ceiris, and some smaller pieces, called Catalecta, are subjoined to some editions of his works. For critical accounts of the various editions of Virgil, the reader is referred to Dr. Clarke's Bibliographical Dictionary, and Dibdin's Introduction to the Classics.

VIRGIL (Polydore). See POLYDORE.

VI'RGIN. *s.* (*vierge*, Fr. *virgo*, Lat.) 1. A maid; a woman unacquainted with men (*Genesis*). 2. A woman not a mother (*Milton*). 3. Any thing untouched or unmingled; any thing pure (*Derham*). 4. The sign of the zodiac in which the sun is in August (*Milton*).

VI'RGIN. *a.* Befitting a virgin; suitable to a virgin; maidenly (*Cowley*).

To VI'RGIN. *v. n.* (a cant word.) To play the virgin (*Shakspeare*).

VIRGIN CAPE, a cape of Patagonia. Lon. 67. 54 W. Lat. 52. 23 S.

Virgin Gorda, Great Virgin, or **Spanish Town**, one of the Virgin Islands, in the W. Indies. It has two good harbours, with some other islands depending on it (see **Virgin Islands**), and is defended by a fort situate in lon. 64. 0 W. lat. 18. 18 N.

Virgin Islands, about 30 islands and keys, in the W. Indies, between St. Juan de Puerto Rico and the Leeward Caribbee Islands. They were called Las Virgines by the Spaniards, in honour of the 11,000 virgins of the legend. They are possessed by the English and Danes. In the first division, belonging to the English, is Tortola, the principal, to which belongs Jost Van Dyke's and Little Van Dyke's, Guana Isle, with Beef and Thatch Islands. In the second division is Virgin Gorda, to which belong Anegada, or Drowned Isle, Nicker, Prickly Pear, and Muskito Islands, the Commanoes, Scrub and Dog Islands, the Fallen City (two rocky islets, close together, at a distance resembling ruins) the Round Rock, Ginger, Cooper's Salt Island, Peter's Island, and the Dead Chest. Of the Danish division, the principal islands are St. Thomas and St. John. Lon. from 63. 45 to 64. 55 W. Lat. from 17. 10 to 18. 30 N.

VI'RGINAL. *a.* (from *virgin.*) Maiden; maidenly; pertaining to a virgin (*Hammond*).

To **Vi'rginal.** *v. n.* To pat; to strike as on the virginal: a cant word (*Shakspeare*).

Virginal, a stringed and keyed musical instrument, resembling the harpsichord. Formerly in much esteem, but now entirely out of use.

VIRGINIA, daughter of the centurion L. Virginius. Appius Claudius, the decémvir, became enamoured of her, and to obtain possession of her person, procured one of his favourites to claim her as the daughter of a slave, and Appius, in the capacity of judge, had pronounced the sentence, and delivered her into the hands of his friend, when Virginius, informed of this violent proceeding, arrived from the camp. The father demanded to see his daughter, and when this request was granted, he snatched a knife and plunged it in Virginia's breast. The soldiers, incensed against the tyrant, marched to Rome. Appius was seized, but destroyed himself in prison, and Marcus Claudius, his favourite, was put to death, and the decemviral power abolished, about 449 years B. C.

Virginia, one of the United States of America, bounded on the S. by N. Carolina and Tenassee, on the W. by Kentucky, on the N. by Pennsylvania and the river Ohio, and on the E. by the Atlantic ocean. It is 446 miles in length, and 224 in breadth. The principal rivers are James, York, Rappahannoc, and Potomac, which are full of convenient harbours; and there are also many small rivers, some of which are capable of receiving the largest merchant ships. The climate is various. The land toward the mouth of the rivers is generally low, and fit for rice, hemp, and Indian corn, though at present stocked with many sorts of trees, from 30 to 70 feet high. The land higher up the rivers is generally level, and watered with springs: but there are here and there some small hills. That near the sea is generally sandy, and without stones, for which reason the horses are seldom shod. The richest lands lie near the branches of the rivers, and abound with various sorts of timber, surprisingly large. The principal produce is tobacco, wheat, and Indian corn; but the culture of tobacco has considerably declined in favour of that of wheat. Virginia is divided into 82 counties, and in 1790 contained 747,610 inhabitants, including 292,627 slaves. The capital is Richmond.

VIRGINIAN ACACIA, in botany. See **Robinia.**

Virginian creeper, in botany. See **Clematis.**

Virginian guelder rose, in botany. See **Spircea.**

Virginian pike, in botany. See **Phytolacca.**

Virginian silk, in botany. See **Periplora.**

Virginian tobacco. See **Nicotiana.**

VI'RGINITY. *s.* (*virginitas*, Lat.) Maidenhead; unacquaintance with man (*Taylor*).

VIRGIN'S BOWER (Upright). See **Flammula jovis** and **Clematis.**

VIRGO, in astronomy, one of the signs or constellations of the zodiac, which the sun enters about the 21st or 22d of August; being one of the 48 old constellations, and is mentioned by the astronomers of all ages and nations, whose works have reached us. Anciently the figure was that of a girl, almost naked, with an ear of corn in her hand, evidently to denote the time of harvest among the people who invented this sign, whoever they were. But the Greeks much altered the figure, with clothes, wings, &c. and variously explained the origin of it by their own fables: thus, they tell us that the virgin, now exalted into the skies, was, while on earth, that Justitia, the daughter of Astræus and Ancora, who lived in the golden age, and taught mankind their duty; but who, when their crimes increased, was obliged to leave the earth, and take her place in the heavens. Again, Hesiod gives the celestial maid another origin, and says she was the daughter of Jupiter and Themis. There are also others who depart from both these accounts, and make her to have been Erigone, the daughter of Icarius: while others make her Parthene, the daughter of Apollo, who placed her there; and others, from the ear of corn, make it a representation of Ceres; and others, from the obscurity of her head, of Fortune.

The ancients, as they gave each of the 12 months of the year to the care of some one of the 12 principal deities, so they also threw into the protection of each of these one of the 12 signs of the zodiac. Hence Virgo, from the ear of corn in her hand, naturally fell to the lot of Ceres, and we accordingly find it called Signum Cereris.

The stars in the constellation Virgo, in Ptolemy's catalogue, are 32; in Tycho's 33; in Hevelius's 50; and in the Britannic 110, viz. 1.0.5.11.28. and 65.

VIRGULTUM. (*virguletum*, a *virgula*, dimin. a *virga*.) Small twigs or brushwood. Otherwise called cremium, a cremando, from burning.

VI'RILE. *a.* (*virilis*, Latin.) Belonging to man; not puerile; not feminine.

VIRI'LITY. *s.* (*virilitas*, Latin.) 1. Manhood; character of man (*Rambler*). 2. Power of procreation (*Brown*).

VIRNENBERG, a town and citadel of Westphalia, the capital of a county to which it gives name. It is twenty miles W. of Coblentz. Lon. 7. 5 E. Lat. 50. 27 N.

VIRTON, a town of Austrian Luxemburg, 22 miles W. of Luxemburg. Lon. 5. 41 E. Lat. 49. 36 N.

VI'RTUAL. *a.* (*virtuel*, Fr. from *virtue*.) Having the efficacy without the sensible or material part (*Stillingfleet*).

Virtual focus, in optics, is a point in the axis of a glass, where the continuation of a refracted ray meets it.

Virtual velocity. See Velocity.

VIRTUA'LITY. *s.* (from *virtual*.) Efficacy (*Brown*).

VIRTUA'LLY. *ad.* (from *virtual*.) In effect, though not materially (*Hammond*).

To VI'RTUATE. *v. a.* (from *virtue*.) To make efficacious: not used (*Harvey*).

VI'RTUE. *s.* (*virtus*, Latin.) 1. Moral goodness: opposed to *vice* (*Pope*). 2. A particular moral excellence (*Addison*). 3. Medicinal quality (*Bacon*). 4. Medicinal efficacy (*Addison*). 5. Efficacy; power (*Atterbury*). 6. Acting power (*Mark*). 7. Secret agency; efficacy, without visible or material action (*Davies*). 8. Bravery; valour (*Raleigh*). 9. Excellence; that which gives excellence (*Ben Jonson*). 10. One of the orders of the celestial hierarchy (*Tickel*).

VI'RTUELESS. *a.* (from *virtue*.) 1. Wanting virtue; deprived of virtue. 2. Not having efficacy; without operating qualities (*Hakewill*).

VIRTUO'SO. *s.* (Italian.) A man skilled in antique or natural curiosities; a man studious of painting, statuary, or architecture (*Dryden*).

VI'RTUOUS. *a.* (from *virtue*.) 1. Morally good (*Shakspeare*). 2. Chaste (*Shakspeare*). 3. Done in consequence of moral goodness (*Dryden*). 4. Efficacious; powerful (*Milt.*). 5. Having wonderful or eminent properties (*Spenser*). 6. Having medicinal qualities.

VI'RTUOUSLY. *ad.* (from *virtuous*.) In a virtuous manner (*Denham*).

VI'RTUOUSNESS. *s.* (from *virtuous*.) The state or character of being virtuous (*Spenser*).

VI'RULENCE. Vi'rulency. *s.* (from *virulent*.) Mental poison; malignity; acrimony of temper; bitterness (*Swift*).

VI'RULENT. *a.* (*virulentus*, Latin.) 1. Poisonous; venomous. 2. Poisoned in the mind; bitter; malignant.

VI'RULENTLY. *ad.* (from *virulent*.) Malignantly; with bitterness.

VIS, a Latin word, signifying force or power; adopted by writers on physics, to express divers kinds of natural powers or faculties.

The term vis is either active or passive: the *vis activa* is the power of producing motion; the *vis passiva* is that of receiving or losing it. The *vis activa* is again subdivided into *vis viva* and *vis mortua*.

Vis absoluta, or absolute force, is that kind of centripetal force which is measured by the motion that would be generated by it in a given body, at a given distance, and depends on the efficacy of the cause producing it.

Vis acceleratrix, or accelerating force, is that centripetal force which produces an accelerated motion, and is proportional to the velocity which it generates in a given time; or it is as the motive or absolute force directly, and as the quantity of matter moved inversely.

Vis impressa is defined by Newton to be the action exercised on any body to change its state, either of rest, or moving uniformly in a right line.

This force consists altogether in the action; and has no place in the body after the action is ceased: for the body perseveres in every new state by the vis inertiæ alone.

This vis impressa may arise from various causes; as from percussion, pression, and centripetal force.

Vis inertiæ, or power of inactivity, is defined by Newton to be a power implanted in all matter, by which it resists any change endeavoured to be made in its state, that is, by which it becomes difficult to alter its state, either of rest or motion.

This power then agrees with the vis resistendi, or power of resisting, by which every body endeavours, as much as it can, to persevere in its own state, whether of rest or uniform rectilinear motion; which power is still proportional to the body, or to the quantity of matter in it, the same as the weight or gravity of the body; and yet it is quite different from, and even independent of, the force of gravity, and would be and act just the same if the body were devoid of gravity. Thus, a body by this force resists the same in all directions, upwards or downwards or obliquely; whereas gravity acts only downwards.

Bodies only exert this power in changes brought on their state by some vis impressa, force impressed on them. And the exercise of this power is, in different respects, both resistance and impetus; resistance, as the body opposes a force impressed on it to change its state; and impetus, as the same body endeavours to change the state of the resisting obstacle. Phil. Nat. Princ. Math. lib. 1.

The vis inertiæ, the same great author elsewhere observes, is a passive principle, by which bodies persist in their motion or rest, and receive motion, in proportion to the force impressing it, and resist as much as they are resisted. See Resistance and Inertia.

Vis centripeta. See Central forces.

Vis motrix. See Moving force.

Vis elastica. See Vis mortua.

Vis insita, in medicine, a property which is defined by Haller to be that power by which a muscle, when wounded, touched, or irritated, contracts, independent of the will of the animal that is the object of the experiment, and without its feeling pain. See Irritability.

Vis medicatrix naturæ. A term employed by physicians to express that healing power in an animated body, by which, when diseased, the body is enabled to regain its healthy actions.

Vis mortua. Vis elastica. That property by which a muscle after the death of the animal, or a muscle immediately after having been cut out from a living body, contracts.

Vis nervosa. This property is considered by Whytt to be another power of the muscles by which they act when excited by the nerves.

VISAGAPATAM, a town of the peninsula of Hindustan, in the circle of Cicacole, 50 miles S.W. of Cicacole, and 100 N.E. of Rajamundry. Lon. 83. 40 E. Lat. 17. 45 N.

VI'SAGE. *s.* (*visage*, Fr.) Face; countenance; look (*Waller*).

VISCERA. The plural of *viscus*.

VI'SCERATE. *v. a.* (*viscera*, Lat.) To embowel; to exenterate.

VI'SCID. *a.* (*viscidus*, Latin.) Glutinous; tenacious.

VISCI'DITY. *s.* (from *viscid.*) 1. Glutinousness; tenacity; ropiness (*Arbuthnot*). 2. Glutinous concretion (*Floyer*).

VISCO'SITY. *s.* (*viscocité*, Fr.) 1. Glutinousness; tenacity (*Arbuthnot*). 2. A glutinous substance (*Brown*).

VISCOUNT (*Vice Comes*), was anciently an officer under an earl, to whom, during his attendance at court, he acted as deputy to look after the affairs of the country. But the name was afterwards made use of as an arbitrary title of honour, without any shadow of office pertaining to it, by Henry VI.; when, in the 18th year of his reign, he created John Beaumont a peer, by the name of Viscount Beaumont; which was the first instance of the kind. A viscount is created by patent as an earl is; his title is right honourable; his mantle is two doublings and a half of plain fur; and his coronet has only a row of pearls close to the circle.

VI'SCOUNTESS. *s.* The lady of a viscount.

VI'SCOUS. *a.* (*viscosus*, Lat.) Glutinous; sticky; tenacious (*Bacon*).

VISCUM. Missletoe. In botany, a genus of the class diœcia, order tetandria. Male: calyxless; petals four, resembling a calyx, dilated and united at the base; anthers sessile, growing to the petals. Fem.: calyx a slight border; petals four, dilated at the base; styleless; berry inferior, one-seeded. Twelve species, chiefly natives of the West Indies and the Cape: one only of European growth, viscum album, with lanceolate, obtuse leaves; stem forked; heads of the flowers axillary. It is a parasitic shrub, growing on the oak, apple, pear, hawthorn, service, hasel, maple, ash, lime-tree, willow, elm, horn-beam, &c. It is supposed to be propagated by birds, especially by the field-fare and thrush, which feed upon its berries, the seeds of which pass through the bowels unchanged; and along with the excrement adhere to the branches of trees where they vegetate.

The missletoe of the oak has, from the times of the ancient druids, been always preferred to that produced on other trees; but it is now well known that the viscus quercus differs in no respect from others.

This plant is the ἰξ of the Greeks, and was in former times thought to possess many medicinal virtues; however, we learn but little concerning its efficacy from the ancient writers on the materia medica, nor will it be deemed necessary to state the extraordinary powers ascribed to the missletoe by the crafty designs of druidical knavery. Both the leaves and branches of the plant have very little smell, and a very weak taste of the nauseous kind. In distillation they impregnate water with their faint unpleasant smell, but yield no essential oil. Extracts, made from them by water, are bitterish, roughish, and sub-saline. The spirituous extract of the wood has the greatest austerity, and that of the leaves the greatest bitterness. The berries abound with an extremely tenacious and most ungrateful sweet mucilage.

The viscus quercus obtained great reputation for the cure of epilepsy; and a case of this disease, of a woman of quality in which it proved remarkably successful, is mentioned by Boyle. Some years afterwards its use was strongly recommended in various convulsive disorders by Colbach, who has related several instances of its good effects. He administered it in substance in doses of half a dram, or a dram, of the wood or leaves, or an infusion of an ounce. This author was followed by others, who have not only given testimony of the efficacy of the missletoe in different convulsive affections, but also in those complaints denominated nervous, in which it was supposed to act in the character of a tonic.

But all that has been written in favour of this remedy, which is certainly well deserving of notice, has not prevented it from falling into general neglect; and the colleges of London and Edinburgh have, perhaps not without reason, expunged it from their catalogues of the materia medica.

VISCUS, in medicine, any organ or part which has an appropriate use, as the viscera of the abdomen, &c.

VISHNEI VOLOTCHOK, a town of Russia, in the government of Tver. It has a canal, which, by uniting the Tverza and the Masta, connects the inland navigation between the Caspian and the Baltic; and is seated on the river Zua, 50 miles N.W. of Tver.

VISHNOU, that person in the triad of the Bramins who is considered as the preserver of the universe. Brahma is the creator, and Siva the destroyer: and these two, with Vishnou, united in some inexplicable manner, constitute Brahme, or the supreme numen of the Hindus.

VISIBI'LITY. *s.* (*visibilité*, Fr. from *visible.*) 1. The state or quality of being perceptible to the eye. 2. State of being apparent, or openly discoverable; conspicuousness.

VI'SIBLE. *s.* Perceptibility by the eye.

VI'SIBLE. *a.* (*visible*, Fr. *visibilis*, Latin.) 1. Perceptible by the eye (*Dryden*). 2. Discovered to the eye (*Shaksveare*). 3. Apparent; open; conspicuous (*Clarendon*).

VISIBLE, something that is an object of sight or vision, or something whereby the eye is affected, so as to produce a sensation.

The Cartesians say that light alone is the proper object of vision. But according to Newton, colour alone is the proper object of sight; colour being that property of light by which the light itself is visible, and by which the images of opaque bodies are painted on the retina. Philosophers in general had formerly taken for granted, that the place to which the eye refers any visible object, seen by reflection or refraction, is that in which the visual ray meets a perpendicular from the object upon the reflecting or the refracting plane. That this is the case with respect to plane mirrors is universally acknowledged; and some experiments with mirrors of other forms seem to favour the same conclusion, and thus afford reason for extending the analogy to all cases of vision. If a right line be held perpendicularly over a convex or concave mirror, its image seems to make one line with it. The same is the case with a right line held perpendicularly within water; for the part which is within the water seems to be a continuation of that which is without. But Dr. Barrow called in question this method of judging of the place of an object, and so opened a new field of inquiry and debate in this branch of science. This, with other optical investigations, he published in his Optical Lectures, first printed in 1674. According to him, we refer every point of an object to the place from which the pencils of light issue, or from which they would have issued, if no reflecting or refracting substance intervened. Pursuing this principle, Dr. Barrow proceeded to investigate the place in which the rays issuing from each of the points of an object, and that reach the eye after one reflection or refraction, meet; and he found that when the refracting surface was plane, and the refraction was made from a denser medium into a rarer, those rays would always meet in a place between the eye and a perpendicular to the point of incidence. If a convex mirror be used, the case will be the same; but if the mirror be plane, the rays will meet in the perpendicular, and beyond it, if it be concave. He also determined, according to these principles, what form the image of a right line will take when it is presented in different manners to a spherical mirror, or when it is seen through a refracting medium.

M. Bouguer adopts Barrow's general maxim, in supposing that we refer objects to the place from which the pencils of rays seemingly converge at their entrance into the pupil. But when rays issue from below the surface of a vessel of water, or any other refracting medium, he finds that there are always two different places of this seeming convergence: one of them of the rays that issue from it in the same vertical circle, and therefore fall with different degrees of obliquity upon the surface of the refracting medium; and another of those that fall upon the surface with the same degree of obliquity, entering the eye laterally with respect to one another. He says, sometimes one of these images is attended to by the mind, and sometimes the other; and different images may be observed by different persons. And he adds, that an object plunged in water affords an example of this duplicity of images.

From the principle above illustrated, several remarkable phenomena of vision may be accounted for: as—That if the distance between two visible objects be an angle that is insensible, the distant bodies will appear as if contiguous: whence, a continuous body, being the result of several contiguous ones, if the distances between several visibles subtend insensible angles, they will appear one continuous body; which gives a pretty illustration of the notion of a continuum. Hence also parallel lines, and long vistas, consisting of parallel rows of trees, seem to converge more and more the further they are extended from the eye; and the roofs and floors of long extended alleys seen, the former to descend, and the latter to ascend, and approach each other; because the apparent magnitudes of their perpendicular intervals are perpetually diminishing, while at the same time we mistake their distance. See Priestley's Light and Colours.

The mind perceives the distance of visible objects, 1st, From the different configurations of the eye, and the manner in which the rays strike the eye, and in which the image is impressed upon it. For the eye disposes itself differently, according to the different distances it is to see; viz. for remote objects the pupil is dilated, and the crystalline brought nearer the retina, and the whole eye is made more globous; on the contrary, for near objects, the pupil is contracted, the crystalline thrust forwards, and the eye lengthened. Again, the distance of visible objects is judged of by the angle the object makes; from the distinct or confused representation of the objects; and from the briskness or feebleness, or the rarity or density of the rays. To this it is owing, 1st, That objects which appear obscure or confused are judged to be more remote; a principle which the painters make use of to cause some of their figures to appear further distant than others on the same plane. 2d, To this it is likewise owing that rooms whose walls are whitened, appear the smaller; that fields covered with snow, or white flowers, appear less than when clothed with grass; that mountains covered with snow, in the night-time, appear the nearer, and that opaque bodies appear the more remote in the twilight.

The magnitude of visible objects is known chiefly by the angle contained between two rays drawn from the two extremes of the object to the centre of the eye. An object appears so large as is the angle it subtends; or bodies seen under a greater angle, appear greater; and those under a less angle, less, &c. Hence the same thing appears greater or less as it is nearer the eye or further off. And this is called the apparent magnitude. But to judge of the real magnitude of an object, we must consider the distance: for since a near and a remote object may appear under equal angles, though the magnitudes be different, the distance must necessarily be estimated, because the magnitude is great or small according as the distance is. So that the real magnitude is in the compound ratio of the distance and the apparent magnitude; at least when the subtended angle, or apparent magnitude, is very small; otherwise, the real magnitude will be in a ratio compounded of the distance and the sine of the apparent magnitude, nearly, or nearer still its tangent. Hence, objects seen under the same angle, have their magnitudes in the same ratio as their distances. The chord of an arc of a circle appears of equal magnitude from every point in the circumference, though one point be vastly nearer than another. Or if the eye be fixed in any point in the circumference, and a right line be moved round, so as its extremes be always in the periphery, it will appear of the same magnitude in every position. And the reason is, because the angle it subtends is always of the same magnitude. And hence also, the eye being placed in any angle of a regular polygon, the sides of it will all appear of equal magnitude; being all equal chords of a circle described about it. If the magnitude of an object directly opposite to the eye be equal to its distance from the eye, the whole object will be distinctly seen, or taken in by the eye, but nothing more. And the nearer you approach an object, the less part you see of it. The least angle under which an ordinary object becomes visible is about one minute of a degree.

The figure of visible objects is estimated chiefly from our opinion of the situation of the several parts of the object. This opinion of the situation, &c. enables the mind to apprehend an external object under this or that figure, more justly than any similitude of the images in the retina, with the object, can; the images being often elliptical, oblong, &c. when the objects they exhibit to the mind are circles, or squares, &c.

The laws of vision, with regard to the figures of visible objects, are, 1. That if the centre of the eye be exactly in the direction of a right line, the line will appear only as a point. 2. If the eye be placed in the direction of a surface, it will appear only as a line. 3. If a body be opposed directly towards the eye, so as only one plane of the surface can radiate on it, the body will appear as a surface. 4. A remote arch, viewed by an eye in the same plane with it, will appear as a right line. 5. A sphere, viewed at a distance, appears a circle. 6. Angular figures, at a great distance, usually appear round. 7. If the eye look obliquely on the centre of a regular figure, or a circle, the true figure will not be seen; but the circle will appear elliptical, &c.

VI'SIBLENESS. *s.* (from *visible.*) State or quality of being visible.

VI'SIBLY. *ad.* (from *visible.*) In a manner perceptible by the eye (*Dryden*).

VISIER, an officer or dignitary in the Ottoman empire, whereof there are two kinds; one called by the Turks vizier-azem, that is, grand visier, is the prime minister of state in the whole empire. He commands the army in chief, and presides in the divan or great council. Next to him are six other subordinate visiers, called visiers of the bench; who officiate as his counsellors or assessors in the divan.

VI'SION. *s.* (*vision*, French; *visio*, Lat.) 1. Sight; the faculty of seeing (*Newton*). 2. The act of seeing (*Hammond*). 3. A supernatural appearance; a spectre; a phantom (*Milton*). 4. A dream; something shown in a dream (*Locke*).

For the theory of vision, according to the first of the above acceptations, see SIGHT. See also Mr. Andrew Horn's ingenious work, lately published, entitled The Seat of Vision determined.

VI'SIONARY. *a.* (*visionaire*, French.) 1. Affected by phantoms; disposed to receive impressions on the imagination (*Pope*). 2. Imaginary; not real; seen in a dream; perceived by the imagination only (*Swift*).

VI'SIONARY. VI'SIONIST. *s.* (*visionaire*, French.) One whose imagination is disturbed (*Turner*).

To VI'SIT. *v. a.* (*visiter*, Fr. *visito*, Lat.) 1. To go to see (*Pope*). 2. To send good or evil judicially (*Isaiah*). 3. To salute with a present (*Judges*). 4. To come to a survey, with judicial authority (*Ayliffe*).

To VI'SIT. *v. n.* To keep up the intercourse of ceremonial salutations at the houses of each other (*Law*).

VI'SIT. *s.* (*visite*, Fr. from the verb.) The act of going to see another (*Watts*).

VI'SITABLE. *a.* (from *visit.*) Liable to be visited (*Ayliffe*).

VI'SITANT. *s.* (from *visit.*) One who goes to see another (*South*).

VISITA'TION. *s.* (*visito*, Latin.) 1. The act of visiting (*Shakspeare*). 2. Objects of visits (*Milton*). 3. Judicial visit or perambulation (*Ayliffe*). 4. Judicial evil sent by God (*Taylor*). 5. Communication of divine love (*Hooker*).

VISITATO'RIAL. *a.* (from *visitor.*) Belonging to a judicial visitor (*Ayliffe*).

VI'SITER. *s.* (from *visit.*) 1. One who comes to see another (*Swift*). 2. An occasional judge; one who regulates the disorders of any society (*Garth*).

VI'SIVE. *a.* (*visif*, Fr.) Formed in the act of seeing (*Broome*).

VISNEA, in botany, a genus of the class dodecandria, order trigynia. Calyx five-leaved, inferior: corol five-petalled; stigmas three; nut two or three-celled, half inferior. One species only, a shrub of the Canaries, with alternate leaves, and small yellow flowers.

VI'SNOMY. *s.* (corrupted from *physiognomy.*) Face; countenance: not in use (*Sp.*).

VI'SOR. *s.* (*visus*, Lat. *visiere*, Fr.) A mask used to disfigure and disguise (*Shakspeare*).

VI'SORED. *a.* (from *visor.*) Masked (*Milt.*).

VI'STA. *s.* (Italian.) View; prospect through an avenue (*Addison*).

VISTULA, or Weisel, a large river of Poland, which taking its rise in the mountains south of Silesia, visits Cracow, Warsaw, &c. and continuing its course northward, falls into the Baltic sea below Dantzic.

VI'SUAL. *a.* (*visiel*, Fr.) Used in sight; exercising the power of sight; instrumental to sight (*Milton*).

VITÆ ARBOR. See Arbor vitæ.

Vitæ lignum. See Guiacum.

VI'TAL. *a.* (*vitalis*, Latin.) 1. Contributing to life; necessary to life. 2. Relating to life (*Shakspeare*) 3. Containing life (*Milton*). 4. Being the seat of life (*Pope*). 5. So disposed as to live (*Brown*). 6. Essential; chiefly necessary (*Corbet*).

Vital actions. See Vital functions.

Vital functions. Vital actions. Those actions of the body upon which life immediately depends, as the circulation of the blood, respiration, heat of the body, &c. See Function.

Vital principle. See Life.

VITALBA. Traveller's joy. This plant is common in our hedges, and is the clematis vitalba; foliis pinnatis, foliolis cordatis scandentibus of Linnéus. Its leaves, when fresh, produce a warmth on the tongue; and, if the chewing is continued, blisters arise. The same effect follows their being rubbed on the skin. The plant has been administered internally to cure lues venerea, scrophula, and rheumatisms. In France the young sprouts are eaten, when boiled, as hoptops are in this country.

VITA'LITY. *s.* (from *vital.*) Power of subsisting in life (*Raleigh*).

VI'TALLY. *ad.* (from *vital.*) In such a manner as to give life (*Bentley*).

VI'TALS. *s.* (without the singular.) Parts essential to life (*Philips*).

VITE'LLARY. *s.* (from *vitellus*, Latin.) The place where the yolk of the egg swims in the white (*Brown*).

VITEX. Chaste-tree. In botany, a genus of the class didynamia, order angiospermia. Calyx five-toothed; corol with the border six-cleft; drupe one-seeded, with a four-celled nut. Thirteen species, chiefly natives of the East or West Indies, or America.

To VI'TIATE. *v. a.* (*vitio*, Lat.) To deprave; to spoil; to make less pure (*Evelyn*).

VITIA'TION. *s.* (from *vitiate.*) Depravation; corruption (*Harvey*).

VITILIGO. (from *vitio*, to infect.) A disease of the skin. See Alphus.

To VITILI'TIGATE. *v. n.* (*vitiosus* and *litigo*, Latin.) To contend in law cavillously.

VITILITIGA'TION. *s.* (from *vitilitigate.*) Contention; cavillation (*Hudibras*).

VITIO'SITY. *s.* (from *vitiosus*, Latin.) Depravity; corruption (*South*).

VI'TIOUS. *a.* (*vitiosus*, Latin.) 1. Corrupt; wicked; opposite to virtuous (*Milton*). 2. Corrupt; having physical ill qualities (*Ben Jonson*).

VI'TIOUSLY. *ad.* Not virtuously; corruptly.

VI'TIOUSNESS. *s.* (from *vitious.*) Corruptness; state of being vitious (*South*).

VITIS. Vine. In botany, a genus of the class pentandria, order monogynia. Petals cohering at the tip, withered; berry superior, five-seeded. Twelve species; natives of the East Indies and America, except vitis vinifera, which is found in all temperate climates. The following are cultivated.

1. V. vinifera. Common vine.
2. V. Indica. Indian vine.
3. V. laciniosa. Parsley-leaved vine.
4. V. arborea. Pepper vine.

The first is of by far the most consequence; and it is characterised by having lobed, sinuate, naked leaves. It has an abundance of varieties, which we have neither space to detail, nor can perceive any utility in attempting to do so. They are alike propagated from layers or cuttings. The former is the method usually practised, but the latter seems much the better. In order to propagate vines by cuttings, such shoots should be chosen as are strong and well-ripened, of the last year's growth; and these should be cut from the old vine, just below the place where they were produced, taking a knot of the two years wood to each, which should be pruned smooth. The upper part of the shoot should then be cut off, so as to leave the cutting about sixteen inches long. These cuttings are to be placed with their lower part in the ground, in a dry place, laying some litter about their roots to prevent them from drying. Here they should remain till the beginning of April, which is the time to plant them. They are then to be taken up and wiped clean, and if very dry, they should stand with their lower parts in water six or eight hours. Then, having prepared the beds for them, they are to be set at about six feet distance from each other, making their heads slant a little towards the wall. The cutting is to be so buried in the ground, that only the uppermost bud be upon a level with the surface; the earth is then to be well closed about the plant, and a little mould heaped up over the eye of the bud, to keep it from drying. After this no more trouble is necessary than to keep the ground clear from weeds, and to nail up the shoot as it grows, to the wall, rubbing off all the side shoots. The Michaelmas following, if the cuttings have produced strong shoots, they should be pruned down to two eyes. In the spring following the ground is carefully to be dug up about the shoots, and the stalks to be earthed up to the first eye.

During the summer all the lateral shoots must be rubbed off as they appear, and only the two from the two eyes which were left must be encouraged; these, as they grow, are to be nailed up against the wall; and in the middle of July they should be shortened, by nipping off their tops, and this will greatly strengthen the shoot. At the Michaelmas following these should be pruned, leaving them each three eyes, if strong; but if weakly, only two. The next summer there will be two shoots from each shoot of the last year's wood; but if there should be two from one eye, which is sometimes the case, the weaker is to be rubbed off. At Midsummer the ends of the shoots are to be pinched off as before; all the weak lateral shoots are to be displaced, as in the preceding summer, and the whole management is to be the same. This is all the culture necessary to young vines.

As to the management of grown vines, it is to be observed, that these rarely produce any bearing shoots from wood that is more than one year old; the great care must therefore be always to have plenty of this wood in every part of the tree. The bearing shoots for the following year should be left at the pruning with four eyes each. The under one of these does not bear, and consequently there are only three which do. Many leave more eyes on the shoots, that they may have more fruit, which is the consequence; but then the fruit is much poorer; and this is so well known in the wine countries, that there are laws to direct that no more than such a number of eyes are to be left on each shoot, for the grapes would else be of a poor juice, and destroy the reputation of their wine. Each of the three eyes left will produce two or three bunches; so that each shoot will give six or nine bunches, which is as much as it can bring to any perfection. The shoots must be laid in at about eighteen inches asunder against the wall; for if they are closer, when the side-shoots are produced there will be no room to train them in upon the wall; and the largeness of the leaves of the vine requires also that the shoots should be at a proportionable distance.

The best season for pruning vines is the end of September, or beginning of October. The cut is always to be made just above the eye, and sloped backward from it, that if it bleed, the juice may not run upon the bud; and where there is an opportunity of cutting down some young shoots to two eyes, to produce vigorous shoots for the next year's bearing, it should always be done. In May, when the vines are shooting, they should be looked over, and all the shoots from the old wood should be rubbed off, as also the weaker, whenever there are two produced from one eye. During the month of May the branches must be nailed up against the wall as they shoot, and toward the latter end of this month the ends of the bearing branches should be nipped off, which will greatly strengthen the fruit. Those, however, which are to bear the next year should not be stopped before the beginning of July.

The uses to which the fruit of this valuable tree is applied are well known. The vine was introduced by the Romans into Britain, and appears to have very soon become common. Few ancient monasteries were destitute of a vineyard, and all the oldest ruins contain traces of such a plantation. Malmsbury points out the county of Gloucester as excelling every other part of the country, in his time, in the number and richness of its vineyards. In an early period of our history the isle of Ely was expressly denominated the isle of Vines by the Normans. Vineyards are noticed in the Doomsday-book, as also by Bede, as early as the commencement of the eighth century. Wine was paid at this period as a common tithe. The bishop of Ely, shortly after the conquest, appears to have received at least three or four tuns of wine annually as tithes from the vines in his diocese, and in his leases he made frequent reservations of a certain quantity of wine by way of rent. Many of these were little inferior to the French in sweetness.

Gaul was totally without vines in the days of Cæsar, yet not only this province, but the interior of the country, was largely stocked so early as the time of Strabo. In the reign of Vespasian France became famous for her vineyards, and even exported its wines to Italy.

In the age of Lucullus, however, even the Romans themselves were seldom able to regale themselves with wine. Italy raised but little; and the foreign wines were so expensive that they were rarely produced even at entertainments; and when they were, every guest was only indulged with a single draught. But in the seventh century, as their conquests augmented the degree of their wealth and enlarged the sphere of their luxury, wines became an object of particular attention. Vaults were now constructed, and gradually became well-stocked, and the wines of the country acquired a considerable character. The Falernian arose immediately into great repute; the fashion for it, however, progressively gave way; others rose into greater favour, and especially that of Florence, towards the close of the century; and the more westerly parts of Europe were at once subjugated by the arms of Italy, and exhilirated by her wines.

Vine leaves and the tendrils have an adstringent taste, and were formerly used in diarrhœas, hæmorrhages, and other disorders requiring refrigerant and styptic medicines. The juice or sap of the vine, called lachryma, has been recommended in calculous disorders; and it is said to be an excellent application to weak eyes and specks of the cornea. The unripe fruit has a harsh, rough, sour taste; its expressed juice, called verjuice, was formerly much esteemed, but is now superseded by the juice of lemons: for external use, however, particularly in bruises and pains, verjuice is still employed, and considered to be a very useful application. See Uvæ passæ, Wine, Acetum, and Vineyard.

Vitis alba. The white bryony was formerly so called. See Bryonia alba.

Vitis idæa. The red whortle berry. The leaves of this plant, vaccinium vitis idæa of

Linnéus, are so adstringent as to be used in some places for tanning. They are said to mitigate the pain attendant on calculous diseases when given internally in the form of decoction. The ripe berries abound with a grateful acid juice; and are esteemed in Sweden as aperient, antiseptic, and refrigerant, and often given in putrid diseases. See Vaccinium.

VITIX AGNUS CASTUS. The systematic name of the chaste tree. See Agnus castus.

VITMANNIA, in botany, a genus of the class octandria, order monogynia. Calyx four-cleft; corol four-petalled; nectary a scale at the base of the filaments; nuts semilunate, compressed, one-seeded. One species only, an East Indian tree, with round branches, and umbelled, terminal flowers.

VI'TREOUS. *a.* (*vitreus*, Latin.) Glassy; consisting of glass; resembling glass (*Ray*).

Vitreous humour. Humor vitreus. The pellucid body which fills the whole bulb of the eye behind the crystalline lens. The whole of the vitreous substance is composed of small cells which communicate with each other, and are distended with a transparent fluid.

VI'TREOUSNESS. *s.* (from *vitreous*.) Resemblance of glass.

VI'TRIFICABLE. *a.* (from *vitrificate*.) Convertible into glass.

To VITRI'FICATE. *v. a.* (*vitrum* and *facio*, Latin.) To change into glass (*Bacon*).

VITRIFICA'TION. *s.* (*vitrification*, Fr. from *vitrificate*.) Production of glass; act of changing, or state of being changed into glass.

To VI'TRIFY. *v. a.* (*vitrifier*, French.) To change into glass (*Bacon*).

To Vi'trify. *v. n.* To become glass; to be changed into glass (*Arbuthnot*).

VITRINGA (Campege), a learned professor of Francker, and author of many considerable works; the principal of which are, Commentary on Isaiah; Observationes Sacræ; Synagoga Vetus; &c. He died in 1772. He had a son, also named Campege Vitringa, who gained some reputation by a work called Abrégé de la Théologie Naturelle.

VITRIOL (Acid of). See Sulphuric acid.

Vitriol (Acid elixir of). See Elixir vitrioli acidum.

Vitriol (Blue). See Cuprum vitriolatum.

Vitriol (Elixir of). See Elixir vitriolum acidum.

Vitriol (Green). See Ferrum vitriolatum.

Vitriol (Roman). See Cuprum vitriolatum.

Vitriol (Spirits of). See Acidum sulphuricum dilutum, and Sulphuric acid.

Vitriol (Sweet elixir of). See Elixir vitrioli dulcis.

Vitriol (Sweet spirit of). See Spiritus ætheris vitriolici.

Vitriol (White). See Zincum vitriolatum.

Vitriol, in mineralogy. See Vitriolum.

Vitriol of copper, in mineralogy. See Vitriolum.

Vitriol of iron, in mineralogy. See Vitriolum.

Vitriol of lead, in mineralogy. See Plumbum.

Vitriol of zinc, in mineralogy. See Vitriolum.

VI'TRIOLATE. Vi'triolated. *a.* (*vitriolé*, French, from *vitriolum*, Latin.) Impregnated with vitriol; consisting of vitriol.

VITRIO'LIC. Vitrio'lous. *a.* (*vitriolique*, French; from *vitriolum*, Latin.) Resembling vitriol; containing vitriol (*Floyer*).

VITRIOLUM. Vitriol. Sulphuric acid with an earthy or metallic base. Copperas. In mineralogy, a genus of the class salts. Of a very caustic taste; its watery solution made turbid both by soda and prussiat of lime; very soft, mouldering in the air; dissolving like water when exposed to heat, and in a very strong degree leaving a genuine metallic oxyd. Nine species.

1. V. magnesii. Sulphat of cobalt. Of a rosy red colour, its watery solution depositing an ochraceous sediment when dissolved soda is poured into it, and a greenish one when a solution of prussiat of lime is poured into it. Found in the mines of Neusohl in Hungary: it is soluble in 16 times its weight of cold water, and melts with borax into a blue glass; when crystallised it exhibits an elongated, eight-sided prism.

2. V. niccoli. Sulphat of niccol. Green; its watery solution depositing a whitish-green sediment from a mixture of soda. Found in some mines of Sweden, and usually contains some iron; colour a deep green; it crystallises in double four-sided pyramids, with their lips truncated; and sometimes in large four-sided equal prisms.

3. V. zinci. Sulphat of zinc. Vitriol of zinc. White vitriol. White; its watery solution depositing a white sediment from a mixture of soda or prussiat of lime, and when evaporated crystallising into four-sided prisms, terminated at both ends by a pyramid. Found in the copper mines of Cornwall and Anglesea, and in the zinc mines of Sweden, Bohemia, Germany, and Hungary; rarely in its perfect native state, but generally in a stalactitical or capillary state, or in a loose powdery efflorescence: it is sometimes blended with a little iron, and then tincture of galls turns its solution blackish: the crystals are soluble in something more than twice their weight in water, and effloresce slowly on exposure to air: specific gravity when crystallised, 1·912. When in the state in which it is found in the shops, 1·3275: contains, according to Bergman,

Acid	40
Oxyd	20
Water	40
	100

4. V. cupri. Sulphat of copper. Blue vitriol. Copper vitriol. Of a deep blue colour,

and very astringent acid taste; its watery solution, when copiously mixed with a solution of volatile alkali, becoming a fine sky-blue. There are several varieties; the matter being found sometimes of a light blue, containing copper and iron, or copper, iron, and zinc, united with sulphuric acid; and sometimes of a deep blue, containing zinc and copper only, united with sulphuric acid. Found in the copper mines of Wicklow in Ireland, in France, Saxony, Hungary, Germany, Sweden, &c. sometimes in a state of solution, sometimes crystallised or stalactitical: it has a strong styptic nauseous taste; is sometimes used as an emetic, but more generally as a caustic; its crystals are four-sided prisms, with rhomboidal faces, which are soluble in four times their weight of cold water, and by exposure to the air they slightly effloresce, lose their lustre, and are covered with a yellowish-grey powder: they likewise communicate a green colour to flame. A valuable article of commerce is produced by placing thin plates of iron in the waters where it is held in solution, for the acid having a greater affinity with iron than copper, gradually decomposes it, and leaves the copper in its place. See COPPERAS. Specific gravity 2·1943: contains, according to Proust,

Acid	- -	33
Oxyd of copper	-	32
Water	- -	35
		100

5. V. ferri. Sulphat of iron. Green vitriol. Vitriol of iron. Martial vitriol. Green; its watery solution depositing an ochraceous sediment when mixed with a solution of soda, and a blue one with a prussiat of iron, made blackish by tincture of galls. Found in Britain and various parts of the continent, in grottoes, caverns, and galleries of mines, in the form of pale-green crystals, or in a grey, or yellowish, or reddish-grey efflorescence, or stalactitical, or capillary, and most commonly mixed with copper, zinc, or alum; it is also found in solution: when pure it crystallises into rhomboidal, green, transparent prisms, which are insoluble in alcohol; when heated it melts gradually, and loses its water of crystallisation; and with a strong heat there remains a red powder, known by the name of colcothar of vitriol. Specific gravity, according to Bergman, 1·8399: contains

Acid	-	39
Oxyd	-	23
Water	-	38
		100

6. V. terreum. Combined with earth; its watery solution made blackish by a mixture of tincture of galls. Found in Italy and Hungary, of a yellow, red, blue, green, or black colour: the earth with which it is mixed is generally argillaceous.

7. V. atramentarium. Mixed with stones that are not schistose; its watery solution made black by a mixture of tincture of galls. Four varieties.

α. Of a red colour: called calcitis.
β. Of a grey colour: called sory.
γ. Of a black colour: called melanteria.
δ. Of a yellow colour: called misy.

Found on mount Ramelsburg, in Hercynia, and is produced by pyrites which have mouldered in the air.

8. V. schisti. Mixed with schist; its watery solution made black by a mixture of tincture of galls. Found in Franconia, and originates in decayed pyrites.

9. V. turfæ. Mixed with turf; its watery solution made blackish by a mixture of tincture of galls. Found in some bogs in Sweden, Saxony, Prussia, and France; and never burns with a flame.

VITRIOLUM ALBUM. See ZINCUM VITRIOLATUM.

VITRIOLUM CŒRULEUM. See CUPRUM VITRIOLATUM.

VITRIOLUM ROMANUM. See CUPRUM VITRIOLATUM.

VITRIOLUM VIRIDE. See FERRUM VITRIOLATUM.

VITRUM ANTIMONII CERATUM. A diaphoretic compound exhibited in the cure of dysenteries arising from checked perspiration.

VITRUVIUS (Marcus Vitruvius Pollio), in biography, a celebrated Roman architect, of whom however nothing is known but what is to be collected from his ten books, De Architectura, still extant. In the preface to the sixth book, he writes that he was carefully instructed in the whole circle of arts and sciences; a circumstance which he speaks of with much gratitude, laying it down as certain, that no man can be a complete architect without some knowledge and skill in every other branch of knowledge. And in the preface to the first book he informs us, that he was known to Julius Cæsar; that he was afterwards recommended by Octavia to her brother Augustus Cæsar; and that he was so favoured and provided for by this emperor, as to be out of all fear of poverty as long as he might live. It is supposed that Vitruvius was born either at Rome or Verona, but it is not known which. His books of architecture are addressed to Augustus Cæsar, and not only show consummate skill in that particular science, but also a very uncommon genius and natural abilities. Cardan ranks Vitruvius as one of the twelve persons whom he supposes to have excelled all men in the force of genius and invention; and would not have scrupled to have given him the first place, if it could be imagined that he had delivered nothing but his own discoveries. Those twelve persons were Euclid, Archimedes, Apollonius Pergæus, Aristotle, Archytas of Tarentum, Vitruvius, Achindus, Mahomet Ibn Moses, the inventor or improver of algebra, Duns Scotus, John Suisset, surnamed the calculator, Galen, and Heber of Spain. The best edition of the Architecture of Vitruvius is that of Amsterdam, in 1649. Perault gave an excellent French translation of the same, and added notes and figures: the first edition of which was published at Paris in 1673, and the second, much improved, in 1684. Mr. William Newton too, an ingenious architect, published in 1780, &c. curious commentaries on Vitruvius, illustrated with figures; to which is added a description, with figures, of the military machines used by the ancients.

VITTARIA, in botany, a genus of the class cryptogamia, order filices. Fructification in continued, longitudinal lines, on the disk or near the margin; involucre double, continued; one from the surface, opening outwards, the other from the inflected margin, opening inwards. Three species; foreign ferns.

VITTEAUX, a town of France, in the department of Côte D'Or, seated on the river Braine, among the mountains, where there are quarries of marble, 12 miles S.E. of Semur, and 27 W. of Dijon. Lon. 4. 27 E. Lat. 57. 20 N.

VITTORIA, or Victoria, a considerable town of Spain, capital of the province of Alaba, in Biscay. It is surrounded by double walls, and in the principal square are the town-house, two convents, and a fine fountain. The large streets are bordered with fine trees, which are a good defence against the heat of the sun. It has a great trade in hardware, particularly in sword-blades, which are made here in large quantities. It is seated on an eminence, at the end of a plain, fertile in corn and grapes, 32 miles S.E. of Bilboa, and 155 N. of Madrid. Lon. 2. 56 E. Lat. 42. 55 N.

VI'TULINE. *a.* (*vitulinus*, Lat.) Belonging to a calf, or to veal (*Bailey*).

VITU'PERABLE. *a.* (*vituperabilis*, Lat.) Blameworthy (*Ainsworth*).

To VITU'PERATE. *v. a.* (*vituperer*, Fr. *vitupero*, Latin.) To blame; to censure.

VITUPERA'TION. *s.* (*vituperatio*, Lat.) Blame; censure (*Ayliffe*).

VITUS'S DANCE (St.). See Medicine.

VIVA'CIOUS. *a.* (*vivace*, Lat.) 1. Long-lived (*Bentley*). 2. Sprightly; gay; active; lively.

VIVA'CIOUSNESS. Viva'city. *s.* (*vivacite*, French, from *vivacious*.) 1. Liveliness; sprightliness (*Boyle*). 2. Longevity; length of life (*Brown*).

VI'VARY. *s.* (*vivarium*, Latin.) A warren.

VIVE. *a.* (*vif*, French; *vivus*, Latin.) Lively; forcible; pressing (*Bacon*).

VI'VENCY. *s.* (*vivo*, Latin.) Manner of supporting or continuing life (*Brown*).

VIVERO, a town of Spain, in Galicia, seated at the foot of a steep mountain, near the river Landrova, whose mouth forms a large harbour on the Atlantic, 30 miles N.W. of Mondonnedo. Lon. 7. 34 W. Lat. 43. 50 N.

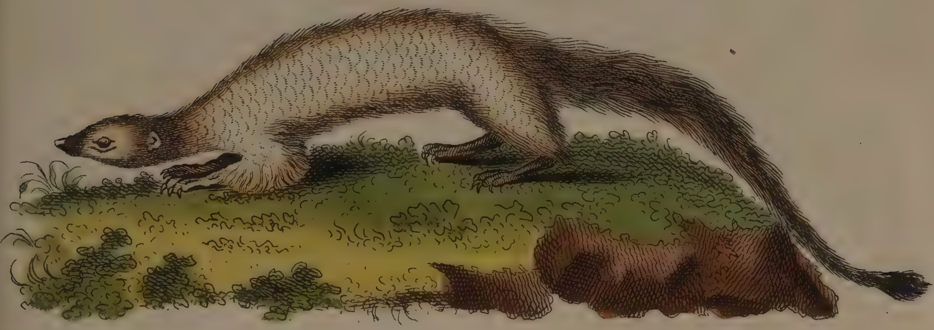
VIVERRA, in zoology, a genus of the class mammalia, order feræ. Fore-teeth six, intermediate ones shorter; tusks one on each side, longer; grinders more than three; tongue often aculeate backwards; claws not retractile. The bodies of these are long, of equal thickness; legs short, usually with five claws, immoveable, ears small, snout pointed; between the arms and genitals an orifice, leading to a duct secreting an unctuous fetid matter; active and swift; some walk on the heels, some climb, and some burrow; the females produce many at a litter. Thirty-two species, scattered over the globe; many of which have a near approach to the mustela tribe; whence the popular name of weasel is applied to various species of both. All those that belong to the viverra tribe are exotic to our own country. We shall select a few examples.

1. V. ichneumon. Ichneumon, or ichneumon weasel. Tail thick at the base, tapering, tip tufted; great toes remote. This species of the weasel, frequently called Pharaoh's rat, has bright, flame-coloured eyes; small rounded ears, almost naked; a long slender nose; but a thicker body than others of the genus. Its tail is very thick, and tapers to a point; legs short; hair hard and coarse; colour various in different individuals; some alternately barred with a dull yellowish-brown and white; others of a pale brown or mouse-colour, and mottled. The throat and belly are of an uniform brown. Mr. Pennant mentions a specimen in the Ashmolean museum, that measured thirteen inches and a half to the origin of the tail, and the tail itself eleven; but the Egyptian variety is the largest. Some of these measure forty-two inches from the point of the nose to the extremity of the tail.

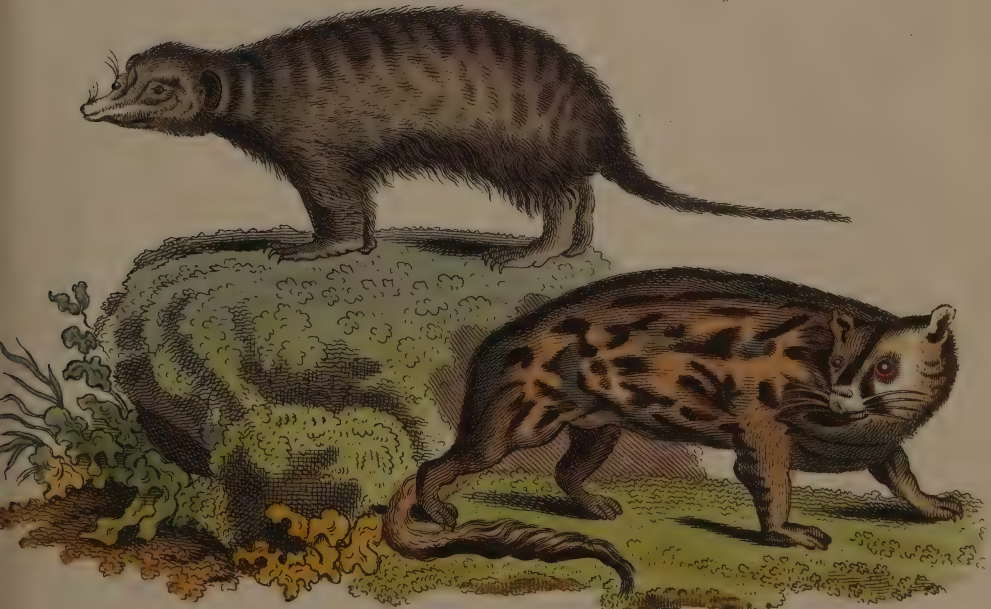
It inhabits Egypt, Barbary, India, and the Indian islands, and is a most useful animal, being the inveterate enemy of serpents, and of other noxious reptiles that infest the torrid zone. It attacks without dread that most fatal of serpents, the naja, or cobradi capello; and should it receive a wound in the combat, it instantly retires, and is said to obtain an antidote from the oppiortiza: after which it returns to the attack, and seldom fails of a victory. It is a great destroyer of the eggs of the crocodile, which it digs out of the sand; and even kills multitudes of the young of those terrible reptiles: it was not therefore without reason that the ancient Egyptians ranked the ichneumon among their deities. It is at present domesticated, and kept in houses in India and Egypt. It is also more useful than a cat in destroying rats and mice. It easily worries a cat, though larger and stronger than itself, and declines not to combat even with the dog. It grows very tame, and is very active: springs with great agility on its prey, and will glide along the ground like a serpent, and seem as if without feet: yet immediately catches any thing that is flung to it. It is a great enemy to poultry, and will feign itself dead till they come within its reach. Like the cat, it is a great lover of fishes. After sucking out the blood, it draws its prey to its hole. When asleep, it brings the head and tail under the belly, and appears like a round ball, with two legs sticking out. Rumphius observes how skilfully it seizes the serpents by the throat, so

Viverra.

V. Ichneumon.



V. Tetradactyla or Surikate.



V. Tigrina or Tigrine Weesel.

London Published by Sherwood & C.o Paternoster Row, Nov.r 1.1812.

as to avoid receiving any injury; and Lucan beautifully describes the same address of this animal in conquering the Egyptian asp.

Aspidas ut Pharias cauda solertior hostis
Ludit, et iratas incerta provocat umbra:
Obliquansque caput vanas serpentis in auras,
Effusæ toto comprendit guttura morsu
Letiferam citra saniem: tunc irrita pestis
Exprimitur, faucesque fluunt pereunte veneno.
Lib. iv. 724.

Thus oft th' ichneumon, on the banks of Nile,
Invades the deadly aspic, by a wile;
While artfully his slender tail is play'd,
The serpent darts upon the dancing shade:
Then turning on the foe with swift surprise,
Full on his throat the nimble creature flies:
The gasping snake expires beneath the wound,
And sheds his baneful poison on the ground.
Rowe.

2. V. tetradactyla. Four-toed weasel, or surikate. Feet-toed; snout long, moveable. This is the surikate of Buffon, a weasel with a very sharp-pointed nose, depressed head, inflated cheeks, and a long upper jaw: black whiskers, arising from warty excrescences; irids dusky; the space about its eyes black; ears small, rounded, black, and close to the head; tongue oblong, blunt, and rough; six small cutting teeth, two long canine teeth in each jaw, and five grinders on each side; back very broad, and a little convex; belly broad and flat; legs short; feet small, and naked at the bottom, with four toes on each. This and the hyæna are the only quadrupeds which have four toes on all their feet. The claws on the fore-feet are long, like those of the badger; those on the hind-feet short.

Its hair is brown near the bottom, black near the ends, and hoary at the points; that on the back undulated or wavy; on the inside of its legs yellowish-brown; tail is tufted with black; eleven inches long; the tail, which is thick at the base, ending abrupt, measures eight inches.

It inhabits the Cape of Good Hope, where it is called meer-rat. It feeds on flesh, preys on mice, and is a great enemy to the cockroach. Like the squirrel, it employs its fore-paws to convey food to its mouth, and laps water like a dog; it is much in motion, and always makes a grunting noise. It utters two kinds of sounds; when uneasy or disturbed, it barks like a young dog; when pleased, emits a sound like that of a small rattle in rapid motion. It may be tamed; but it bites those whose smell it finds disagreeable. It sits quite erect, dropping its fore-legs on its breast, and moving its head with great ease, as if on a pivot, and appearing as if it listened, or had just spied something new. When pleased, it makes a rattling noise with its tail; for which reason the Dutch at the Cape call it klappermaus. It is also found in Java, where the Javanese style it jupe; the Dutch suracatje.

3. V. candivolva. Yellow weasel. Yellow mixed with black; tail of the same colour, prehensile. This species has a short dusky nose, and small eyes; ears short, broad, and flapping, and placed at a great distance from each other; head flat and broad, and cheeks tumid; tongue very long; legs and thighs short, and very thick. It has five toes on each foot, separated, and standing all forward; its claws are large, a little hooked, and of a flesh-colour; hair short, close, soft, and glossy; on the head, back, and sides, it consists of a mixture of yellow and black; cheeks, belly, and the inside of its legs, yellow. Half way down the middle of its belly is a dusky stripe, ending at the tail; and another along the middle of the back to the tail; the tail itself of a bright tawny, mixed with black; it is round, and has the same prehensile faculty as that of the sapajous. The body measures nineteen inches, the tail seventeen. There was one shewn some years ago in London. Its keeper said it came from the mountains of Jamaica, and called it a potto, the name given by some writers to a species of sloth found in Guinea. It was very good-natured and sportive, and would catch hold of any thing, and suspend itself by its tail. It lay with its head under its legs and belly.

4. V. prehensilis. Mexican weasel. Olive yellow mixed with grew and brown; tail long, prehensile. The Mexican weasel has a short dusky nose, a tongue of great length, and small eyes, encircled with a dusky hue; its ears are short, rounded, and placed very distant from each other; hair also short. On the head, the upper part of the body, and the tail, the colours are yellow, grey, and black, intermixed; throat and inside of the legs, lively yellow; belly of a dirty white, tinged with yellow; its toes are separated; the claws crooked, white, and guttered beneath: about two feet four inches long; tail near one foot three, tapering, covered with hair, except beneath, near the end, where it is naked, and of a fine flesh-colour. It is extremely like the former, but larger in all its parts. Like the former, it has a prehensile tail, and is naturally very good-natured. It goes to sleep at the approach of day, wakes towards night, and becomes very lively. It makes use of its feet to catch any thing, and has many of the actions of a monkey. It eats like a squirrel, holding its food in its hands. It has a variety of cries during the night: one like the low barking of a dog; its plaintive note is cooing like a dove; its menace, a hissing like that of a goose or a serpent; its angry cry is confused. It is very fond of sugar and all sweet things; eats fruits and vegetables of all kinds; will fly at poultry, catch them under the wing, suck the blood, and leave them without tearing them. It prefers a duck to a pullet, yet hates the water.

5. V. nasua. Brasilian weasel. Tawny; tail annulate with white; snout long, moveable. This weasel has the upper jaw lengthened into a pliant, moveable proboscis, which is much longer than the lower jaw. Its ears are round, eyes small, nose dusky; hair of a bright bay colour, smooth, soft, and glossy; tail annulated with dusky and bay; has a whitish breast; body measures eighteen inches, tail thirteen.

The dusky Brazilian weasel is a variety of this. Its nose and ears are formed as above; but beneath each eye it has two spots of white; the hair on its back and sides is dusky at the roots, black in the middle, and tipt with yellow; chin and throat, sides of its cheeks, and belly, yellowish; feet black, and tail annulated with black and white. Sometimes the tail is of an uniform dusky colour. Linnéus has described this variety as a distinct species.

These inhabit Brazil and Guiana; they feed on fruits, eggs, and poultry; run up trees very nimbly; eat like a dog, holding their food between their fore-legs; are easily tamed, very good-natured, and seem much inclined to sleep during the day. They make a sort of a whistling noise.

6. V. vulpecula. Stifling weasel. Entirely chesnut; snout elongated; has a short slender nose, short ears and legs, and a long tail, of a black and white colour; its body is black, well covered with hair; its length from nose to tail is about eighteen inches. It inhabits Mexico and North America. This and the four following species are remarkable for the pestiferous, suffocating, and most fetid vapour they emit from behind, when attacked, pursued, or frightened; which is their only means of defence. Some turn their tail to their enemies, and keep them at a distance by a frequent crepitus; others send forth their urine, loaded with an intolerable stench, to the distance of eighteen feet: the pursuers are stopped by the fetor. Should any of this liquid fall into the eyes, it almost occasions blindness; if on the clothes, the smell will remain for several days, in spite of all washing:—in order to be sweetened, they must even be buried in fresh soil. Dogs that are not true bred to the chace run back as soon as they perceive the smell: those who have been used to it will kill the animal, but are often obliged to relieve themselves by thrusting their noses into the ground. There is no bearing the company of a dog that has killed one, for several days. Professor Kalm was one night in great danger of being suffocated by one of them that was pursued into a house where he slept. When driven into a house where cattle are kept, the cattle bellow through pain: indeed they are much disturbed at the sight or smell of any weasel in their stalls. Notwithstanding this, the flesh is reckoned good meat, and not unlike that of a pig; but it must be skinned as soon as killed, and the bladder taken carefully out. It is capable of being tamed, and will follow its master like a dog, and never emits its vapour except when terrified. It breeds in hollow trees, or holes under ground, or in the clefts of rocks. It climbs trees with great agility, kills poultry, eats eggs, and destroys birds.

7. V. putorius. Striated or striped weasel. Blackish, with five dorsal, parallel, whitish lines. This is about the size of an European pole-cat, but the back is more arched; the ears are rounded; the head, neck, belly, legs, and tail black: back and sides marked with five parallel whitish lines: one on the top of the back, and two on each side; the second extends some way up the tail, which is long and bushy towards the end: but it varies in the disposition of its stripes. It inhabits North America. When attacked, bristles up its hair, and flings its body into a round form: its odour, like that of the last, is intolerable. Du Pratz says, that the male is of a shining black. It digs holes, climbs, sleeps by day, prowls by night; feeds on worms, insects, birds, and sheep; when pursued by dogs contracts itself. Penis with a cartilaginous bone.

8. V. mephitis. Skunk. Back white, with a longitudinal black line from the middle to the tail. This species, like the rest, has short rounded ears: cheeks are black: a white stripe from the nose, between the ears, to the back: the upper part of the neck, and the whole back white, but divided at the bottom by a black line, commencing at the tail, and passing a little way up the back: its belly and legs are black; tail bushy, being covered thick with long coarse hair, generally black, sometimes tipt with white: the nails on all the feet are very long, like those on the fore feet of the badger: it is rather less than the former species.

It inhabits Peru and North America, as far as Canada, and is of the same manners, and as much a stinkard, as the two preceding. Charlevoix calls it *l'enfant du diable*, and *bete puante*, devil's child, and stinking beast.

9. V. zorilla. Zorilla. Variegated with black and white. This is the annas of the Indians, the zorrinas of the Spaniards. Its back and sides are marked with short stripes of black and white; but the latter is tinged with yellow: tail is long and bushy, part white, part black: legs and belly black: size less than the preceding. It inhabits Peru, and other parts of South America. Its fetid odour overpowers even the American panther, and stupifies that formidable enemy.

10. V. Capensis. Cape weasel or ratel. Black; back grey edged with white. This creature has a blunt nose, and no external ears; in their place only a small rim round the orifice of the auditory passage. Its tongue rough; legs short, and claws very long and straight, like those of the badger, and guttered beneath: colour of its crown, and of the whole upper part of its body, grey; the rest black, but that from each ear to the tail there runs along the sides a dusky line, leaving another of grey beneath it.

Length of the body forty inches, of the tail twelve: the fore claws measure an inch and three-quarters, the hind ones an inch.

It inhabits the Cape of Good Hope: lives on honey, and is a great enemy to the bees, which, in that country, usually inhabit the deserted burrows of the Ethiopian boar, the porcupine, jackal, and other animals that lodge under ground. It preys in the evening: ascends the highest part of the desert to look about, and will then put one foot before its eyes, to prevent the dazzling of the sun. The reason of its going to an eminence is, for the sake of seeing or hearing the honey-guide cuckoo, which lives on bees, and, as it were, conducts it to their haunts. The Hottentots follow the same guide. This animal cannot climb; but when he finds the bees lodged in trees, through rage at the disappointment, he will bite the bark from the trunks. By this sign also, the Hottentots know that there is a nest of bees above.

The hair is so stiff, and the hide so tough, probably formed so by nature as a defence against the sting of bees, that this animal is not easily killed. By biting and scratching, it makes a stout resistance; and the dogs cannot fasten on its skin. A pack, which could tear a middle-sized lion to pieces, can make no impression on the hide of this beast. By worrying, they will leave it for dead, yet without having inflicted on it any wound. The Hottentots give it the name of ratel. This emits the same intolerable vapour as several of the preceding.

11. *V.* civetta. Civet. Tail above spotted, brown towards the tip; mane chesnut; back spotted with cinereous and brown.

This species, though it has been called civet-cat, has no resemblance to a cat, but in its agility. It has short rounded ears, sky blue eyes, and a sharp nose, tipped with black: the sides of the face, chin, breast, legs, and feet, black: the rest of the face, and part of the sides of the neck white, tinged with yellow. From each ear proceed three black stripes, ending at the throat and shoulders. The back and sides are ash-coloured, tinged with yellow, and marked with large dusky spots, disposed in rows. The hair is coarse; that on the top of the body erect like a mane. The tail is sometimes wholly black, sometimes spotted near the base: length about two feet three inches; the tail fourteen inches.

It inhabits India, the Philippine isles, Guinea, Ethiopia, and Madagascar. The perfume called civet is produced from the orifice under the anus, in both sexes, secreted by peculiar glands. The persons who keep them are said to procure the civet by scraping the inside of this bag twice a week with an iron spatula, getting about a dram each time; but it is seldom sold pure, being generally mixed with suet or oil, to make it more weighty. The males yield the most, especially when they are previously irritated. They are fed, when young, with pap made of millet, and with a little flesh or fish; when old, with raw flesh. In a wild state, they prey on fowls, &c.: size that of a cat.

12. V. zibetha. Zibet. Tail annulate, black, streaked: short rounded ears, a sharp long nose, and a pale ash-coloured face: the head and lower part of the neck mixed with dirty white, brown, and black: the sides of the neck marked with stripes of black, beginning near the ears, and ending at the breast and shoulders. From the middle of the neck, along the ridge of the back, is extended a black line, reaching some way up the tail; on each side of which are two others. The sides are spotted with ash-colour and black: the tail is barred with black and white: the black bars are broader on the upper side than on the lower. This species was first distinguished from the preceding by Buffon, though it had been long before figured by Hernandez and Gesner. It was unknown in Mexico, till introduced there from the Philippine isles. It yields the same perfume as V. civetta. These animals seem not to have been known to the ancients. It is probable the perfume was brought to Europe without their being acquainted with its origin.

The zibet is found wild in Arabia, Malabar, Siam, as well as in the Philippines. It is ferocious, hardly tameable, and easily returns to its original wildness: eats small animals, birds, fishes, roots, and fruits; climbs and runs with ease.

13. V. genetta. Genet. Tail annulate; body spotted, blackish tawny. The ears are a little pointed; the body slender, and tail very long: the ridge of the back marked with a black line: tail annulate with black and tawny, and the feet are black: sometimes the ground-colour of the hair inclines to grey. It is about the size of a martin; but the fur is shorter.

It inhabits Turkey, Syria, and Spain: frequents the banks of rivers, and other moist places: Buffon says there are some found in the southern provinces of France.

They smell faintly of musk, and, like the civet, have an orifice beneath the tail. They are kept tame in the houses at Constantinople, and are useful as cats, for the purpose of catching mice: seventeen inches long.

14. V. fossa. Fossane. Tail annulate; body cinereous, spotted with black.

The fossane weasel has a slender body, round ears, and black eyes: back and legs covered with cinereous hair, mixed with tawny: the sides of its face black. From the hind part of the head four black lines are extended towards the back and shoulders: the tail is semi-annulated with black; the whole under side of the body is of a dirty white.

It inhabits Madagascar and Guinea, Cochin-China, and the Philippine isles: fierce, and hard to be tamed. In Guinea it is called berbe, and by the Europeans wine-bibber, as it is very greedy of palm-wine. Like the rest of its genus, it is destructive to poultry. When young its flesh is reckoned good: has not the civet odour.

15. V. Malaccensis. Malacca weasel. Tail long, annulate with black; body grey, dotted above with black; above the eyes four round spots; on the neck and back three black stripes. Inhabits Malacca; fierce, active, leaping from tree to tree; lives by prey; smells of musk; retains its urine a long time, which is used by the Malays as an aphrodisiac and strengthener. Size and habits of a cat.

16. V. fasciata. Striped fitchet. Hair of

the tail long, black, and tawnyish; body grey, with six long, black, longitudinal stripes, beneath white. Inhabits India: two feet nine inches long.

17. V. maculata. Spotted fitchet. Body, legs, and tail black, irregularly spotted with white. Inhabits New South Wales: about one and a half foot long. See Nat. Hist. Pl. CLXXXV.

VIVES, in veterinary science. See IVES.

VIVIANI (Vincentio), a celebrated Italian mathematician, was born at Florence in 1621, some say 1622. He was a disciple of the illustrious Galileo, and lived with him from the 17th to the 20th year of his age. After the death of his great master, he passed two or three years more in prosecuting geometrical studies without interruption, and in this time it was that he formed the design of his Restoration of Aristeus. This ancient geometrician, who was contemporary with Euclid, had composed five books of problems, De Locis Solidis, the bare propositions of which were collected by Pappus, but the books are entirely lost; which Viviani undertook to restore by the force of his genius.

He broke this work off before it was finished, in order to apply himself to another of the same kind, which was, to restore the fifth book of Apollonius's Conic Sections. While he was engaged in this, Borelli found, in the library of the grand duke of Tuscany, an Arabic MS. with a Latin inscription, importing that it contained the eight books of Apollonius's Conic Sections; of which the eighth was not found to be there. He carried this MS. to Rome, in order to translate it with the assistance of a professor of the oriental languages. So unwilling, however, was Viviani to lose the fruits of his labours, that he refused to receive the smallest account from Borelli on the subject. At length he finished the work, and published it in 1659, with the title De Maximis et Minimis geometrica divinatio in quintum conicorum Apollonii Pergæi. He was called by the state to undertake an operation of great importance, viz. to prevent the inundations of the Tiber, in which Cassini and he were employed for some length of time. On account of his great talents he received a pension from Louis XIV. In 1666 he was honoured by the grand duke with the title of the first mathematician. He resolved three problems which had been proposed to all the mathematicians of Europe. In 1669 he was chosen to fill, in the Royal Academy of Sciences, a place among the eight foreign associates. This circumstance, so honourable to his reputation, gave new vigour to his exertions, and he published three books of the Divination upon Aristeus, in 1701, which he dedicated to the king of France. Viviani acquired a good fortune, which he laid out in building a magnificent house at Florence; here he placed a bust of Galileo, with several inscriptions in honour of that great man. He died in 1703, aged 81.

VI'VID. *a.* (*vividus*, Latin.) 1. Lively; quick; striking (*Pope*). 2. Sprightly; active (*Watts*).

VI'VIDLY. *ad.* (from *vivid.*) With life; with quickness; with strength (*Boyle*).

VI'VIDNESS. *s.* (from *vivid.*) Life; vigour; quickness.

VIVIERS, a town of France, in the department of Ardeche, with a bishop's see. It is seated among rocks (on one of which the cathedral is built) on the river Rhone, 20 miles N. of Orange, and 70 N.E. of Montpellier. Lon. 4. 46 E. Lat. 44. 20 N.

VIVI'FICAL. *a.* (*vivificus*, Latin.) Giving life (*Bailey*).

To VIVI'FICATE. *v. n.* (*vivifico*, Latin.) 1. To make alive; to inform with life; to animate. 2. To recover from such a change of form as seems to destroy the essential properties.

VIVIFICA'TION. *s.* (from *vivificate.*) The act of giving life (*Bacon*).

VIVI'FIC. *a.* (*vivificus*, Lat.) Giving life; making alive (*Ray*).

To VI'VIFY. *v. a.* (*vivifier*, Fr. *vivus* and *facio*, Lat.) To make alive; to animate; to endue with life (*Bacon. Harvey*).

VIVI'PAROUS. *a.* (*vivus* and *pario*, Lat.) Bringing the young alive: opposed to *oviparous* (*Ray*).

VI'XEN. *s.* *Vixen* is the name of a she-fox; and applied to a woman, whose nature is thereby compared to a she-fox (*Shakspeare*).

VIZ. *ad.* (*videlicet*, written with a contraction.) To wit; that is (*Hudibras*).

VI'ZARD. *s.* (*visiere*, Fr.) A mask used for disguise; a visor (*Roscommon*).

To VI'ZARD. *v. a.* (from the noun.) To mask (*Shakspeare*).

VI'ZIER. *s.* (properly *wazir.*) The prime minister of the Turkish empire (*Knolles*).

UKRAINE, a large country of Europe, lying on the borders of Turkey in Europe, Poland, Russia, and Little Tartary. Its name properly signifies a frontier. By a treaty between Russia and Poland in 1693, the latter remained in possession of all that part of the Ukraine lying on the west side of the river Dnieper, which is but indifferently cultivated; while the country on the east side, inhabited by the Cossacs, is in much better condition. The Russian part is comprised in the government of Kiof; and the empress of Russia having obtained the Polish palatinate of Kiof, by the treaty of partition in 1793, the whole of the Ukraine, on both sides of the Dnieper, belongs now to that ambitious and formidable power. The principal town is Kiof.

ULCER. (*ulcus*, from ἑλκος, a sore.) A purulent solution of continuity of the soft parts of an animal body. Ulcers may arise from a variety of causes, as all those which produce inflammation, from wounds, specific irritations of the absorbents, from scurvy, cancer, the venereal or scrofulous virus, &c. The proximate or immediate cause is an increased action of the absorbents, and a specific action of the arteries, by which a fluid is separated from the blood upon the ulcerated surface. They are variously denominated: the following is the most frequent division: 1. The simple ulcer, which takes place generally from a superficial wound. 2. The sinuous, which runs under the integuments, and whose orifice is narrow, but not callous. 3. The fistulous ulcer, or fistula, a deep ulcer, whose orifice is narrow and callous. 4. The fungous ulcer, whose surface is covered with fungous flesh. 5. The gangrenous, which is livid, fetid, and gangrenous. 6. The scorbutic, which depends on a scorbutic acrimony. 7. The venereal, arising from the venereal disease. 8. The cancerous ulcer, or open cancer. (See CANCER). 9. The carious ulcer, depending upon a carious bone. 10. The inveterate ulcer, which is of long continuance, and resists the ordinary applications. 11. The scrofulous ulcer, known by its having arisen from indolent tumours, its discharging a viscid, glary matter, and its indolent nature.

To U'LCERATE. *v. n.* To turn to an ulcer.

To U'LCERATE. *v. a.* (*ulcerer*, Fr. *ulcero*, Latin.) To disease with sores (*Arbuthnot*).

ULCERATED SORE THROAT. See CYNANCHE.

ULCERA'TION. *s.* (*ulceratio*, Lat.) 1. The act of breaking into ulcers. 2. Ulcer; sore (*Arbuthnot*).

U'LCERED. *a.* (from *ulcer.*) Grown by time from a hurt to an ulcer (*Temple*).

U'LCEROUS. *a.* (*ulcerosus*, Lat.) Afflicted with old sores (*Shakspeare*).

U'LCEROUSNESS. *s.* (from *ulcerous.*) The state of being ulcerous.

ULEA, or ULABORG, a seaport of Sweden, in East Bothnia. It is the largest town in East Bothnia, and situate at the mouth of a river of the same name, 320 miles N. of Abo. Lon. 22. 20 E. Lat. 65. 40 N.

ULEX. Furze. Gorse. Whin. In botany, a genus of the class diadelphia, order decandria. Calyx two-leaved; legume hardly longer than the calyx. Three species, as follow; all of which are cultivated.

1. U. Europæus. Common furze or gorse. A well known shrub, and found largely on our heaths and commons.

2. U. nanus. Dwarf furze. Lower than the common sort, with a less flaming orange or yellow flower. Found wild in our elevated mountains.

3. U. Capensis. Cape or African furze. Growing to the height of five or six feet in its natural soil, producing no flowers in England.

ULI'GINOUS. *a.* (*uliginosus*, Latin.) Slimy; muddy (*Woodward*).

ULLAGE, in gauging, is so much of a cask or other vessel as it wants of being full.

ULLSWATER, a lake of Westmorland, 10 miles N. of Ambleside, and 14 S.W. of Penrith. It is eight miles long, and abounds with char, and a variety of other fish. The navigators of this lake find much amusement by discharging guns, or small cannon, in certain stations. The report is reverberated from rock to rock, promontory, cavern, and hill, with every variety of sound; now dying away upon the ear, and again returning like peals of thunder, and thus re-echoed seven times distinctly.

ULM, a free imperial city of Suabia, and the chief of that order in the circle, where the archives thereof are deposited. It is fortified; and is seated on the Danube, where it receives the Iller, with a handsome bridge over the former. Here is a good college; and in the cathedral, which is a handsome structure, are 68 copper vessels full of water, ready for the extinguishing of fire. The inhabitants are protestants, and have a good trade in linens, fustians, hardware, and wool. The duke of Bavaria took it in 1702, by stratagem; but surrendered it after the battle of Blenheim, in 1704. It was taken by the French, in September 1796, but they were obliged to abandon it the same month. It is 36 miles W. of Augsburg, 47 S.E. of Stutgard, and 63 N. of Munich. Lon. 10. 12 E. Lat. 48. 25 N.

ULMARIA. (from *ulmus*, the elm; so named because it has leaves like the elm.) Regina prati. Barba capræ. Meadow sweet. Queen of the meadows. This beautiful and fragrant plant is the spiræ ulmaria of Linnéus. The leaves are recommended as mild adstringents. The flowers have a strong smell resembling that of may: they are supposed to possess antispasmodic and diaphoretic virtues, and as they are very rarely used in medicine, Linnéus suspects that the neglect of them has arisen from the plant being supposed to be possessed of some noxious qualities, which it seemed to betray by its being left untouched by cattle. It may be observed, however, that the cattle also refuse the angelica and other herbs, whose innocence is apparent from daily experience.

ULMIN, in chemistry, a name given by Dr. Thomson to a very singular substance that exudes from the trunk of several species of the elm-tree, apparently in consequence of a diseased action of its vessels.

In the year 1797 M. Vauquelin published a paper, entitled Observations sur une maladie des arbres qui attaque spécialement l'Orme, et qui est analogue a un ulcere. In this paper he described two kinds of morbid matter which flowed from the common elm; the one whitish, and nearly as limpid as water; the other dark brown, of greater consistency, and covering the bark of the elm with a kind of varnish. The white coloured sanies contained the following substances:

Vegetable matter	-	0·605
Carbonat of potash	-	0·342
Carbonat of lime	-	0·050
Carbonat of magnesia		0·003
		1·000

The brown substance he found a combination of potash and a peculiar vegetable matter, resembling gum in several of its properties, but differing in several circumstances from that vegetable principle. It was soluble in water, insoluble in alcohol, precipitated from its solution by acids, and when burnt yields an acrid smoke, without any smell of caramel.

No notice of these experiments was taken by any subsequent writer. But in the year 1804 Klaproth published a paper, entitled Chemische Untersuchung eines gummigen pflanzensaftes von Stamm eines Ulme; that is, Chemical experiments on a gummy juice from the stem of an Elm. The substance on which his experiments were made was sent him from Palermo in 1802; and he conjectures that the species of elm from which it exuded was the ulmus nigra. What species he refers to, by the name of ulmus nigra, it is difficult to guess; as probably no such name was ever given by botanists to any species of elm whatever. This substance, according to Klaproth, possessed the following properties.

It was solid, hard, of a black colour, and had considerable lustre. Its powder was brown. It dissolved readily in the mouth, and was insipid. It dissolved speedily in a small quantity of water. The solution was transparent, of a blackish brown colour; and even when very much concentrated by evaporation, was not the least mucilaginous or ropy; nor could it be employed, like mucilage of gum, to paste substances together.

It was completely insoluble both in alcohol and ether. When alcohol was poured into the aqueous solution, the greatest part of the substance was precipitated in light brown flocks. The remainder was obtained by evaporation, and was not sensibly soluble in alcohol. The alcohol, by this treatment, acquired a sharpish taste.

When a few drops of nitric acid were added to the aqueous solution, it became gelatinous, lost its blackish brown colour, and a light brown substance precipitated. The whole solution was slowly evaporated to dryness, and the reddish brown powder which remained was heated with alcohol. The alcohol assumed a golden yellow colour; and when evaporated left a light brown, bitter and sharp resinous substance. Chlorine was found to produce precisely the same effect as nitric acid.

When the exudation from the elm was burnt, it emitted little smoke or flame, and left a spongy, but firm, charcoal; which, when heated sufficiently in the open air, burnt all away, except a little carbonat of potash.

"In the third edition of my System of Chemistry," observes Dr. Thomson, "I inserted this substance as a peculiar vegetable principle, under the name of ulmin. Though I had some suspicion that it might be the same with the peculiar substance previously discovered by Vauquelin in the diseased exudation from the common elm (ulmus campestris); yet, as I had no means of verifying this suspicion, and had no hopes of being able to procure any of the exudation described by Klaproth, I did not venture to hint my suspicion, being apprehensive that it might contribute to increase the confusion of a branch of chemistry by no means remarkable for its precision.

"Fortunately, Mr. Walter Coulson, on reading the account of ulmin in my work, recollected having seen a similar exudation from an old elm in the neighbourhood of Plymouth. Conceiving that this exudation might be ulmin, he collected a quantity of it, and was so obliging as to send it to me. I seized with avidity an opportunity, quite unlooked for, of putting my conjectures to the test of experiment, and of witnessing the very peculiar properties of ulmin described by Klaproth. The substance which I examined agrees in so many particulars with the properties noticed by Klaproth, that there can be little doubt of its belonging to the same species. The few differences which I observed were probably owing to the different length of time that the substance in question had been exposed to the atmosphere. The substance which I examined being an exudation from the common elm, and agreeing in every particular with the properties noticed by Vauquelin, there can be no hesitation in considering them as similar. Hence it follows, that the vegetable substance first described by Vauquelin, and the ulmin of Klaproth, are one and the same.

"The following are the properties of the ulmin from Plymouth, as far as I observed them.

"1. It was of a black colour, possessed considerable lustre, and broke with a vitreous fracture. It was nearly tasteless, leaving in the mouth only a very slight impression of astringency. When heated it did not melt, but swelled very much, as is the case with gum. It readily burnt away at the flame of a candle, leaving a white matter, which melted into an opake white bead, and was carbonat of potash. The proportion of this alkali was considerable, agreeing exactly with the exudation examined by Vauquelin. It contained also lime: 20 grains of the ulmin when burnt in a platinum crucible left 5 grains of residue. Of this 4·8 grains dissolved in nitric acid. The 0·2 grain of residue was insoluble, and possessed the properties of silica, tinged a little with iron. The nitric acid solution being saturated with carbonat of potash, one grain of carbonat of lime precipitated. Hence 20 grains of ulmin contained the following substances:

Subcarbonat of potash -	3·8
Carbonat of lime -	1·0
Silica and oxyd of iron -	0·2
	5·0

"The silica and iron were probably accidentally present, and might have made their way to the ulmin while moist upon the tree; for it is probable that the dust of the road would consist chiefly of silica; or at least would be insoluble in nitric acid, the only criterion by which the 0·2 grains of residue were judged to be silica.

"2. It dissolved readily in water. The solution was dark brown, and possessed exactly the characters described by Klaproth. It produced no effect upon litmus paper, either in its usual blue state, or when reddened by vinegar. Hence the carbonat of potash, which the ulmin contained, must have been in a state of combination.

"3. No effect was produced on the solution by isinglass dissolved in water, by tincture of nutgalls, or by prussiat of potash.

"4. Green sulphat of iron occasioned a very copious muddy brown precipitate.

"5. Muriat of tin occasioned a copious light brown precipitate. The same effect was produced by nitrat of mercury, and superacetat of lead.

"6. Nitrat of silver, caustic potash, and carbonat of potash, occasion no precipitate.

"7. No precipitate was produced by alcohol, how much soever the solution of ulmin was concentrated. In this respect, my experiments differ from those of Klaproth. It is possible, that if I had employed a stronger alcohol than any I was possessed of when these experiments were made, my result might have corresponded with that of Klaproth. I had not the means of determining its specific gravity. But, as it was procured from an apothecary's shop in London, it was probably not less than 0·837.

"8. Nitric acid dropped into the aqueous solution of ulmin occasions a reddish brown precipitate. The liquid being cautiously evaporated to dryness, a reddish matter remains, which is soluble in alcohol, and has a bitter taste. When heated to a temperature between 300° and 400° Fahrenheit, it takes fire even in a close vessel, and burns instantaneously like gunpowder, producing a quantity of gaseous fluid, and leaving a black spongy charcoal behind. This is owing to the nitrat of potash formed by means of the potash contained in the vegetable matter. For when the precipitate is separated by the filter, washed and dried, it loses the property of exploding. When the liquid is gradually evaporated to dryness, prismatic crystals of nitrat of potash shoot at the bottom of the vessel.

"9. Sulphuric acid occasions a very copious yellowish brown precipitate when dropped into the aqueous solution of ulmin. Muriatic acid produces the same effect. When this precipitate is well washed and dried, it is a buff-coloured powder, nearly insipid, and not sensibly soluble either in water or alcohol.

"From these properties it is obvious, that the characters ascribed to ulmin, by Klaproth, do not apply to the substance which I examined. Ulmin might be compared to extractive; but its insolubility in alcohol seems to make it necessary to constitute it a new genus of vegetable matter."

ULMUS. Elm. In botany, a genus of the class pentandria, order digynia. Calyx five-cleft; corolless; seed one, inclosed in a flat membranaceous capsule. Seven species; four European; two American; one East Indian: two natives of our own woods.

1. U. campestris. Common elm. Found wild in our hedges; a variety with narrower leaves.

2. U. suberosa. Dutch elm. Bark of the branchlets cork-winged. Introduced into England in the beginning of the reign of William and Mary: the wood far inferior to the preceding. It has three varieties, from size: the arboreous, shrubby, and dwarf.

3. U. montana. Broad-leaved elm, or wych-hasel. Found wild in our lanes.

4. U. America. American elm. A native of Canada, and admitting also three varieties, characterised by their specific names, red elm, white elm, drooping or weeping elm.

5. U. pumila. Dwarf elm. The branches of this are slender; but the tree itself is said to contend with the oak in height, whence it is strangely misnamed. It is a native of Siberia, and an excellent close-grained timber.

6. U. nemoralis. Horn-beam leaved elm. A native of North America, with oblong near glabrous leaves, equally serrate.

7. U. integrifolia. Oriental elm. A native of the East Indies, with the leaves very entire.

All these may be propagated either by layers or suckers taken from the roots of the old trees; the latter is generally practised, but the former has many superior advantages, and may be more firmly relied on. The elm delights in a stiff strong soil, though in such it grows slowly, but yields a much firmer and enduring timber. In the lighter soils it shoots up apace, but the wood is porous, and of much less comparative value. The inner tough bark of this tree is directed for use by the pharmacopœias. It has no remarkable smell, but a bitterish taste, and abounds with a slimy juice, which has been recommended in nephritic cases, and externally as a useful application to burns. It is also highly recommended in some cutaneous affections allied to herpes and lepra. It is mostly exhibited in the form of decoction, by boiling four ounces in four pints of water, to two pints; of which from four to eight ounces are given two or three times a day.

ULNA. (from ωλενη, the ulna or cubit.) Cubitus. The ulna is smaller and shorter than the os humeri, and becomes gradually smaller as it descends to the wrist. We may divide it into its upper and lower extremities, and its body or middle part. At its upper extremity are two considerable processes, of which the posterior one and largest is named olecranon, and the smaller and anterior one the coronoid process. Between these two processes, the extremity of the bone is formed into a deep articulating cavity, which, from its semi-circular shape, is called the greater sygmoid cavity, to distinguish it from another, which has been named the lesser sygmoid cavity. The olecranon begins by a considerable tuberosity, which is rough, and serves for the insertion of muscles, and terminates in a kind of hook, the concave surface of which moves upon the pulley of the os humeri. This process forms the point of the elbow. The coronoid process is sharper at its extremity than the olecranon, but is much smaller, and does not reach so high. In bending the arm it is received into the fossa at the fore part of the pulley. At the external side of the coronoid process is the lesser sygmoid cavity, which is a small, semi-lunar, articulating surface, lined with cartilage, on which the round head of the radius plays. At the fore part of the coronoid process we observe a small tuberosity, into which the tendon of the brachialis internus is inserted. The greater sygmoid cavity, the situation of which we just now mentioned, is divided into four surfaces by a prominent line, which is intersected by a small sinuosity that serves for the lodgment of mucilaginous glands. The whole of this cavity is covered with cartilage. The body, or middle part of the ulna, is of a prismatic or triangular shape, so as to afford three surfaces and as many angles. The external and internal surfaces are flat and broad, especially the external one, and are separated by a sharp angle, which, from its situation, may be termed the internal angle. This internal angle, which is turned towards the radius, serves for the attachment of the ligament that connects the two bones, and which is therefore called the interosseus ligament. The posterior surface is convex, and corresponds with the olecranon. The borders, or angles, which separate it from the other two surfaces, are somewhat rounded. At about a third of the length of this bone from the top, in its fore part, we observe a channel for the passage of vessels. The lower extremity is smaller as it descends, nearly cylindrical, and slightly curved forwards and outwards. Just before it terminates it contracts, so as to form a neck to the small head with which it ends. On the outside of this little head, answering to the olecranon, a small process, called the styloid process, stands out, from which a strong ligament is stretched to the wrist. The head has a rounded articulating surface, on its internal side, which is covered with cartilage, and received into a small semi-lunar cavity formed at the lower end of the radius. Between it and the os cuneiforme, a moveable cartilage is interposed, which is continued from the cartilage that covers the lower end of the radius, and is connected by ligamentous fibres to the styloid process of the ulna. The ulna is articulated above with the lower end of the os humeri. This articulation is of the species called ginglimus. It is articulated also both above and below to the radius, and to the carpus at its lowest extremity. Its chief use seems to be to support and regulate the motions of the radius. In children, both extremities of this bone are first cartilaginous, and afterwards epiphyses, before they are completely united to the rest of the bone.

ULNAR ARTERY. Arteria ulnaris. See CUBITAL ARTERY.

ULNAR NERVE. Nervus ulnaris. See CUBITAL NERVE.

ULNARIS EXTERNUS, in myology. See EXTENSOR CARPI ULNARIS.

ULNARIS INTERNUS, in myology. See FLEXOR CARPI ULNARIS.

ULOTHO, or VLOTHOW, a town of Westphalia, in the county of Ravensberg, near which is a medical spring. It is six miles S. of Minden.

ULRICSHAMN, a town of Sweden, in W. Gothland, formerly called Bogesund, the present name being given it, in 1741, in compliment to queen Ulrica Eleanora. It is 24 miles W. of Jonkioping, and 47 E. of Gotheborg. Lon. 14. 22 E. Lat. 57. 10 N.

ULSTER, a province of Ireland, 116 miles long and 100 broad; bounded on the E. by the Irish sea, on the N. by the Northern ocean, on the W. by the Atlantic ocean, on the S. by the province of Leinster, and on the S.W. by that of Connaught. The principal rivers are the Bann, Foyle, Swilly, Newry-water, and Laggan; and it abounds with large lakes. The soil, in general, is fruitful in corn and grass; and there are plenty of horses, sheep, and beeves. It contains one archbishopric, six bishoprics, 10 counties, and 365 parishes. The principal place is Londonderry.

ULTIMATE. *a.* (*ultimus*, Lat.) Intended in the last resort (*Rogers*).

ULTIMATE RATIOS. To avoid both the tediousness of the ancients and the inaccuracy of the moderns, sir Isaac Newton introduced what he called the method of prime and ultimate ratios, the foundation of which is contained in the first lemma of the first book of the Principia. Taking this first lemma for a definition, it may be explained (not proved) in the manner following.

Let there be two quantities, one fixed and the other varying, so related to each other, that first the varying quantity continually approaches to the fixed quantity. Secondly, that the varying quantity does never reach or pass beyond that which is fixed. Thirdly, that the varying quantity approaches nearer to the fixed quantity than by any assigned difference, then is such a fixed quantity called the limit of the varying quantity; or in a looser way of speaking, the varying quantity may be said to be ultimately equal to the fixed quantity. These three properties may be otherwise expressed more distinctly thus. First, the difference between the varying quantity, and the fixed quantity must continually decrease. Secondly, this difference must never become either nothing or negative. Thirdly, this difference must become less in respect to the fixed quantity than by any assigned ratio; or the difference between the two quantities must become a less part of the fixed quantity than any fractional part that is assigned, how small soever the fraction expressing such part may be. Wherever these properties are found, the fixed quantity is called the limit of the varying quantity, or the varying quantity is said to be ultimately equal to the fixed quantity. This last phrase must not be taken in an absolute literal sense, there being no ultimate state, no particular magnitude that is the ultimate magnitude of such a varying quantity. Under the word quantity in this definition must be included not only numbers, lines, &c. but more especially ratios considered as a peculiar species of quantity.

Magnitudes thus considered do not consist of indivisible parts, but are imagined generated by motion. Lines, for instance, are described, and in their description are generated not by the apposition of parts, but by the continual motion of points, surfaces by the motion of lines, solids by the motion of surfaces, angles by the rotation of their sides, time by a continual flowing, and so in other things. These generations really take place in the nature of things, and are daily seen in the motion of bodies. The prime or ultimate ratios of magnitudes, thus generated, are investigated by observing their finite increments or decrements, and thence finding the limits of the ratios of those variable magnitudes; not of the ratios to which the magnitudes ever arrive, but those limits to which the ratios of magnitudes perpetually approach.

Many persons deny that quantities can have a first and a last ratio; we request their attentive consideration of the following

Proposition.—If two quantities begin and cease to exist in any finite time, T, they have a first and a last ratio.

Demon.—If they have not a first ratio, they have not a second nor a third ratio, &c.; therefore they have no ratio in the time T. But in the time T they are quantities; and therefore they must have a ratio; that is, they have a ratio, and they have not a ratio in the time T; which is absurd. Therefore they have a first ratio. Q. E. D.

They cease to exist at the end of the time T, by supposition: therefore, after the end of the time T they are nothing; consequently, at the end of the time T they have no ratio. But in the time T they had a ratio; and after the end of the time they have no ratio: therefore they had a last ratio. Q. E. D.

See Newton's Principia, Lib. i.; Smith's Fluxions; Ludlam on Ultimate Ratios, &c.

U'LTIMATELY. *ad.* (from *ultimate.*) In the last consequence (*Atterbury*).

ULTI'MITY. *s.* (*ultimus*, Lat.) The last stage; the last consequence (*Bacon*).

ULTRAMARINE. (*outremére*, Fr.) An exquisitely beautiful, pure, and permanent pigment, of a deep sky blue, capable of sustaining a low red heat without injury, and not sensibly impaired by the action of air or weather. It is the colouring matter contained in the elegant mineral called lapis lazuli, (see LAZULUS:) and according to Klaproth, appears to consist of little else than oxyd of iron. It is separated from the mineral with great difficulty and delicacy, and hence produces a very high price. The method is as follows. Let the lapis lazuli be heated just to redness, and then suddenly quenched in cold water, and let this be repeated two or three times till the stone becomes almost friable. Let it next be ground down with a few drops of water in a clean iron mortar, or still better in an agate one, till it is reduced to a perfectly impalpable powder. Then take one pint of linseed oil, warm it over the fire in a clean vessel, and add one pound of bees'-wax, one pound of turpentine, half a pound of rosin, and half a pound of gum mastich: keep the ingredients over the fire, with constant stirring, till they are melted, and thoroughly incorporated together: the result will be a tenacious, adhesive mass. Of this take any quantity, as six ounces for example, melt it and pour it into a warm clean mortar; then sprinkle upon it three ounces of pulverized lapis lazuli, and incorporate it thoroughly by long beating with the pestle. This being done, pour in some warm water, and again work it about in the same manner as before. In a short time the water will become changed with the blue colouring matter. It must then be poured into a clear tall glass, and replaced by fresh water, proceeding in this manner till the paste will give out no more colour on the addition of fresh water. By standing a few days the colour will subside from the water in which it was suspended; when the clear fluid being decanted, and the rest evaporated, the deep blue powder which remains will be genuine ultramarine.

U'LTRAMARINE. *a.* (*ultra marinus*, Lat.) Being beyond the sea; foreign (*Ainsworth*).

ULTRAMO'NTANE. *a.* (*ultra montanus*, Lat.) Being beyond the mountains.

ULTRAMU'NDANE. *a.* (*ultra* and *mundus*, Lat.) Being beyond the world.

ULTRO'NEOUS. *a.* (*ultro*, Lat.) Spontaneous; voluntary.

ULTZEN, or VELTZEN, a town of Lower Saxony, in the duchy of Lunenburg. It was formerly a hanseatic town, has now a considerable trade in wool, and is seated on the Ilmenan, 22 miles S. of Lunenburg. Lon. 10. 38 E. Lat. 52. 55 N.

ULVA, in botany, a genus of the class cryptogamia, order algæ. Frond membranaceous or gelatinous; fructification solitary or clustered, within the substance or under the cuticle of the whole frond. Forty-one species, of which twenty-five are indigenous to our own country. They are all sessile, and without shoots, and grow in ditches, and on stones along the sea-coast. Ulva umbilicalis is sometimes pickled with salt and preserved in jars, and afterwards stewed and eaten with oil and lemon juice. The species called laver or navel laver is flat, orbicular, sessile, and coriaceous.

ULVERSTONE, a town in Lancashire, with a market on Monday. The country people call it Ouston, and it is seated at the foot of a swift descent of hills to the S.E. near a shallow arm of the Irish sea. It is the port of the district of Furness. The principal inns are kept by the guides, who regularly pass the sands, to and from Lancaster, every Sunday, Tuesday, and Friday. It is 18 miles N.W. of Lancaster, and 267 N.N.W. of London. Lon. 3. 12 W. Lat. 54. 14 N.

ULYSSES, king of Ithaca, the son of Laertes, and father of Telemachus, and one of those heroes who contributed most to the taking of Troy. After the destruction of that city, he wandered for ten years; and at last returned to Ithaca, where, with the assistance of Telemachus, he killed Antinous and other princes who intended to marry his wife Penelope and seize his dominions. He at length resigned the government of his kingdom to his son Telemachus; and was killed by Telegonus, his son by Circe, who did not know him. This hero is the subject of the Odyssey.

UMA, or UMEA, a town of Sweden, in W. Bothnia, seated on the river Uma, in the gulf of Bothnia. The houses are built of wood; and it was twice burnt by the Russians. It is the residence of the governor of W. Bothnia, and 280 miles N. of Stockholm. Lon. 19. 9 E. Lat. 63. 58 N.

UMBEL, in botany. Umbella. Withering translates it the rundle. Receptaculum ex centro eodem elongatum in pedunculos filiformes proportionatos. A receptacle stretching out into filiform proportioned peduncles from the same centre. See CORYMB. It is

1. Simple or undivided; as in panax.

2. Compound; each peduncle bearing another little umbel, umbellet, or umbellule.—The first or larger set of rays constituting the universal or general umbel; the second or subordinate set constituting the partial umbel. Dr. Withering puts spokes for what Linnéus calls radii.

3. Proliferous or superdecompound.

An umbel also is

1. Concave. 2. Convex. 3. Fastigate, or rising gradually like the roof of a house.

It is also either

1. Erect; or, 2. Nodding.

Flowers growing in this manner are called umbellati, umbellate or umbelled flowers; by old authors umbelliferous. Hence,

UMBELLATÆ. The name of the twenty-second order in Linnéus's Fragments; and of the forty-fifth in his Natural Orders. Included in the second order of the fifth class, in the Artificial System. This order is called by Ray and others, umbelliferæ; by Cæsalpinus, ferulaceæ.

U'MBELLATED. *a.* In botany, is said of flowers when many of them grow together in umbels.

UMBELLI'FEROUS. *a.* (*umbel* and *fero*, Lat.) Used of plants that bear many flowers, growing upon many footstalks.

UMBER. (from *umbra*, Lat. a shade, for which purpose it is chiefly used in painting.) Martial clay, iron ochre. See the article ARGILLA.

There are, however, two kinds of earth that pass under this name; 1st, Cologne umber, which is a variety of peat or of earthy brown coal. There are large beds of it wrought in the neighbourhood of Cologne, principally as an article of fuel; a pretty considerable quantity is also imported into Holland, where it is used in the manufacture, or more properly, in the adulteration, of snuff, for which purpose it appears to be better than the common peat of the country; a still smaller quantity is consumed by the paint-makers. The colour of this vegetable umber is a warm somewhat pinkish brown, and is an useful ingredient to the painter in water-colours. The 2d material of this name, and which is far more generally employed in painting, is denominated Turkish umber, and appears to be a variety of the iron ore called brown ironstone ochre. A specimen from Cyprus was analysed by Klaproth, and afforded him,

Oxyd of iron	48
Oxyd of manganese	20
Silex	13
Alumine	5
Water	14
	100

U'MBERED. *a.* (from *umber*, or *umbra*, Lat.) Shaded; clouded (*Shakspeare*).

UMBI'LICAL. *a.* (from *umbilicus*, Latin.) Belonging to the navel (*Ray*).

UMBILICAL CORD. Funis umbilicalis. Funiculus umbilicalis. The navel-string. A cord-like substance, of an intestinal form, about half a yard in length, that proceeds from the navel of the fétus to the centre of the placenta. It is composed of a cutaneous sheath, cellular substance, one umbilical vein, and two umbilical arteries; the former conveys the blood to the child from the placenta, and the latter return it from the child to the placenta.

UMBILICAL HERNIA. Hernia umbilicalis. A protrusion of part of any of the abdominal viscera at the navel. See HERNIA.

UMBILICAL REGION. Regio umbilicalis. The part of the abdominal parietes about two inches all round the navel.

UMBILICUS MARINUS. Cotyledon marina. Androsace. Acetabulum marinum. Androsace mathioli. Fungus petræus marinus. A submarine production found on rocks and the shells of fishes, about the coast of Montpelier, &c. It is said to be in the form of powder a useful antithelmetic and diuretic.

UMBLES. (q. *humbles*, inferior parts.) The eatable part of a deer's entrails, which being a perquisite of office, afford a treat to the keeper and his friends.

U'MBO. *s.* (Lat.) The pointed boss, or prominent part of a buckler (*Swift*).

U'MBRAGE. *s.* (*ombrage*, Fr.) 1. Shade; screen of trees (*Philips*). 2. Shadow; appearance (*Bramhall*). 3. Resentment; offence; suspicion of injury (*Bacon*).

UMBRA'GEOUS. *a.* (*ombragieux*, Fr.) Shady; yielding shade (*Harvey*).

UMBRA'GEOUSNESS. *s.* (from *umbrageous.*) Shadiness (*Raleigh*).

UMBRA'TILE. *a.* (*umbratilis*, Lat.) Being in the shade.

UMBRE, in ornithology. See SCOPUS.

UMBRELLA, a moveable canopy, made of silk or other cloth spread out upon ribs of whale-bone, and supported by a staff, to protect a person from rain, or the scorching beams of the sun. For the latter purpose it has long been used in oriental nations; for the purpose of furnishing shelter from rain, it was brought into England little more than 30 years ago. At that period none but genteel people possessed them; now they are become so common that many who fancy themselves *genteel* people would rather get wet through than be seen to carry one.

UMBRELLA TREE. See MAGNOLIA.

UMBRIATICO, a town of Naples, in Calabria Citeriore, with a bishop's see, though now reduced to a small place. It is seated on the Lipuda, 15 miles N. by W. of St. Severina. Lon. 17. 10 E. Lat. 38. 29 N.

UMBRI′ERE. *s.* The visor of the helmet (*Spenser*).

UMBRO′SITY. *s.* (*umbrosus*, Lat.) Shadiness; exclusion of light (*Brown*).

U′MPIRAGE. *s.* (from *umpire.*) Arbitration; friendly decision of a controversy.

U′MPIRE. *s.* (from *un pere*, Fr. a father, *Minshew.*) An arbitrator; one who, as a common friend, decides disputes (*Boyle*).

UN. A Saxon privative or negative particle answering to *in* of the Latins, and *α* of the Greeks, *on*, Dutch. It is placed almost at will before adjectives and adverbs. All the instances of this kind of composition cannot therefore be inserted. We have collected as many as can be necessary.

UNABA′SHED. *a.* Not shamed; not confused by modesty (*Pope*).

UNA′BLE. *a.* 1. Not having ability (*Rogers*). 2. Weak; impotent (*Shakspeare*).

UNABO′LISHED. *a.* Not repealed; remaining in force (*Hooker*).

UNACCE′PTABLE. *a.* Not pleasing; not such as is well received (*Rogers*).

UNACCE′PTABLENESS. *s.* State of not pleasing (*Collier*).

UNACCE′PTED. *a.* Not accepted (*Prior*).

UNACCE′SSIBLENESS. *s.* State of not being to be attained or approached (*Hale*).

UNACCO′MMODATED. *a.* Unfurnished with external convenience (*Shakspeare*).

UNACCO′MPANIED. *a.* Not attended.

UNACCO′MPLISHED. *a.* Unfinished; incomplete (*Dryden*).

UNACCOU′NTABLE. *a.* 1. Not explicable; not to be solved by reason; not reducible to rule (*Glanville*). 2. Not subject; not controlled.

UNACCOU′NTABLY. *ad.* Strangely (*Addison*).

UNA′CCURATE. *a.* Not exact (*Boyle*).

UNACCU′STOMED. *a.* 1. Not used; not habituated (*Boyle*). 2. New; not usual (*Philips*).

UNACKNOW′LEDGED. *a.* Not owned (*Clarendon*).

UNACQUA′INTANCE. *s.* Want of familiarity; want of knowledge (*South*).

UNACQUAI′NTED. *a.* 1. Not known; unusual; not familiarly known (*Spenser*). 2. Not having familiar knowledge (*Wake*).

UNA′CTIVE. *a.* 1. Not brisk; not lively (*Locke*). 2. Having no employment (*Milton*). 3. Not busy; not diligent (*South*). 4. Having no efficacy (*Milton*).

UNADMI′RED. *a.* Not regarded with honour (*Pope*).

UNADO′RED. *a.* Not worshipped (*Milton*).

UNADO′RNED. *a.* Not decorated; not embellished (*Addison*).

UNADVI′SED. *a.* 1. Imprudent; indiscreet (*Shakspeare*). 2. Done without due thought; rash (*Hayward*).

UNADVI′SEDLY. *ad.* Rashly; imprudently; indiscreetly (*Hooker*).

UNADU′LTERATED. *a.* Genuine; not spoiled by spurious mixtures (*Addison*).

UNAFFE′CTED. *a.* 1. Real; not hypocritical (*Dryden*). 2. Free from affectation; open; candid; sincere (*Addison*). 3. Not formed by too rigid observation of rules (*Milton*). 4. Not moved; not touched.

UNAFFE′CTING. *a.* Not pathetic; not moving the passions.

UNAI′DABLE. *a.* Not to be helped (*Shakspeare*).

UNAI′DED. *a.* Not assisted; not helped.

UNALLI′ED. *a.* 1. Having no powerful relation. 2. Having no common nature; not congenial (*Collier*).

UNA′LTERABLE. *a.* Unchangeable; immutable (*Atterbury*).

UNAMBI′TIOUS. *a.* Free from ambition.

UNANE′LED. *a.* (*un* and *knell.*) Without the bell rung. This sense we doubt (*Shakspeare*).

UNANGULATE STEM, in botany, a stem of one angle: as in iris fœtidissima.

UNANI′MITY. *s.* Agreement in design or opinion (*Addison*).

UNA′NIMOUS. *a.* (*unanime*, Fr. *unanimis*, Latin.) Being of one mind; agreeing in design or opinion (*Dryden*).

UNA′NIMOUSLY. *ad.* With one mind.

UNANO′INTED. *a.* 1. Not anointed. 2. Not prepared for death by extreme unction (*Shakspeare*).

UNA′NSWERABLE. *a.* Not to be refuted.

UNA′NSWERABLY. *ad.* Beyond confutation.

UNA′NSWERED. *a.* 1. Not opposed by a reply (*Milton*). 2. Not confuted (*Hooker*). 3. Not suitably returned (*Dryden*).

UNAPPA′LLED. *a.* Not daunted; not impressed by fear (*Sidney*).

UNAPPA′RENT. *a.* Obscure; not visible.

UNAPPE′ASABLE. *a.* Not to be pacified; implacable (*Milton*).

UNAPPREHE′NSIVE. *a.* 1. Not intelligent; not ready of conception (*South*). 2. Not suspecting.

UNAPPRO′ACHED. *a.* Inaccessible (*Milton*).

UNAPPRO′VED. *a.* Not approved (*Milton*).

UNA′PT. *a.* 1. Dull; not apprehensive. 2. Not ready; not propense (*Shakspeare*). 3.

Unfit; not qualified (*Taylor*). 4. Improper; unfit; unsuitable.

UNA'PTNESS. *s.* 1. Unfitness; unsuitableness (*Spenser*). 2. Dulness; want of apprehension (*Shakspeare*). 3. Unreadiness; disqualification; want of propension (*Locke*).

UNA'RGUED. *a.* 1. Not disputed (*Milton*). 2. Not censured (*Ben Jonson*).

UNA'RMED. *a.* Having no armour; having no weapons (*Grew*).

Unarmed, in botany. Inermis. Without thorns or prickles. Applied to the stem, leaf, and calyx. It is used in a similar sense in other branches of natural history.

UNA'RTFUL. *a.* 1. Having no art or cunning (*Dryden*). 2. Wanting skill (*Cheyne*).

UNA'SKED. *a.* 1. Not courted by solicitation (*Denham*). 2. Not sought by entreaty or care (*Dryden*).

UNASPI'RING. *a.* Not ambitious (*Rog.*).

UNASSA'ILED. *a.* Not attacked; not assaulted (*Shakspeare*).

UNASSI'STED. *a.* Not helped (*Rogers*).

UNASSI'STING. *a.* Giving no help (*Dryden*).

UNASSU'MING. *a.* Not arrogant (*Thomson*).

UNASSU'RED. *a.* 1. Not confident (*Glanville*). 2. Not to be trusted (*Spenser*).

UNATTAI'NABLE. *a.* Not to be gained or obtained; being out of reach (*Dryden*).

UNATTAI'NABLENESS. *s.* State of being out of reach (*Locke*).

UNATTE'MPTED. *a.* Untried; not assayed.

UNATTE'NDED. *a.* Having no retinue or attendants (*Dryden*).

UNATTE'NTIVE. *a.* Careless; heedless.

UNAVA'ILABLE. *a.* Useless; vain with respect to any purpose (*Hooker*).

UNAVA'ILING. *a.* Useless; vain (*Dryden*).

UNAVOI'DABLE. *a.* 1. Inevitable; not to be shunned (*Rogers*). 2. Not to be missed in ratiocination (*Tillotson*).

UNAVO'IDED. *a.* Inevitable (*Shaks.*).

UNAU'THORIZED. *a.* Not supported by authority; not properly commissioned (*Dryden*).

UNAWA'RE. Unawa'res. *ad.* (from *aware*, or *wary*.) 1. Without thought; without previous meditation (*Milton. Pope*). 2. Unexpectedly; when it is not thought of; suddenly (*Wake*).

UNA'WED. *a.* Unrestrained by fear or reverence (*Clarendon*).

UNBA'CKED. *a.* 1. Not tamed; nor taught to bear the rider (*Suckling*). 2. Not countenanced; not aided (*Daniel*).

UNBA'LLAST. Unba'llasted. *a.* Not kept steady by ballast; unsteady.

To UNBA'R. *v. a.* To open by removing the bars; to unbolt (*Denham*).

UNBA'RKED. *a.* Decorticated; stripped of bark (*Bacon*).

UNBA'TTERED. *a.* Not injured by blows.

To UNBA'Y. *v. a.* To set open; to free from the restraint of mounds (*Norris*).

UNBEA'TEN. *a.* 1. Not treated with blows (*Corbet*). 2. Not trodden (*Roscommon*).

UNBECO'MING. *a.* Indecent; unsuitable; indecorous (*Dryden*).

To UNBE'D. *v. a.* To raise from a bed (*Walton*).

UNBEFI'TTING. *a.* Not becoming; not suitable (*Milton*).

UNBEGO'T. Unbego'tten. *a.* 1. Eternal; without generation (*Stillingfleet*). 2. Not yet generated (*Milton*). 3. Not attaining existence (*South*).

UNBELI'EF. *s.* 1. Incredulity (*Dryden*). 2. Infidelity; irreligion (*Hooker*).

To UNBELIE'VE. *v. a.* 1. To discredit; not to trust (*Wotton*). 2. Not to think real or true (*Dryden*).

UNBELIE'VER. *s.* An infidel; one who believes not the scripture of God (*Hooker*).

To UNBE'ND. *v. a.* 1. To free from flexure (*Taylor*). 2. To relax; to remit; to set at ease for a time (*Dryden*).

UNBE'NDING. *a.* 1. Not suffering flexure (*Pope*). 2. Resolute; not yielding (*Rowe*).

UNBE'NEFICED. *a.* Not preferred to a benefice (*Dryden*).

UNBENE'VOLENT. *a.* Not kind (*Rog.*).

UNBENI'GHTED. *a.* Never visited by darkness (*Milton*).

UNBENI'GN. *a.* Malignant; malevolent.

UNBE'NT. *a.* 1. Not strained by the string (*Dryden*). 2. Having the bow unstrung (*Shakspeare*). 3. Not crushed; not subdued (*Dryden*). 4. Relaxed; not intent (*Denham*).

UNBESE'EMING. *a.* Unbecoming (*Thomson*).

UNBESO'UGHT. *a.* Not intreated (*Mil.*).

UNBESTO'WED. *a.* Not given; not disposed of (*Bacon*).

UNBEWA'ILED. *a.* Not lamented (*Shakspeare*).

To UNBI'ASS. *v. a.* To free from any external motive; to disentangle from prejudice (*Pope*).

UNBI'D. Unbi'dden. *a.* 1. Uninvited (*Shakspeare*). 2. Uncommanded; spontaneous (*Milton*).

UNBI'GOTTED. *a.* Free from bigotry (*Addison*).

To UNBI'ND. *v. a.* To loose; to untie (*Dryden*).

To UNBI'SHOP. *v. a.* To deprive of episcopal orders (*South*).

UNBI'TTED. *a.* Unbridled; unrestrained (*Shakspeare*).

UNBLA'MABLE. *a.* Not culpable; not to be charged with a fault (*Dryden*).

UNBLE'MISHED. *a.* Free from turpitude; free from reproach (*Addison*).

UNBLE'NCHED. *a.* Not disgraced; not injured by any soil (*Milton*).

UNBLE'ST. *a.* 1. Accursed; excluded from benediction (*Bacon*). 2. Wretched; unhappy (*Prior*).

UNBLOO'DIED. *a.* Not stained with blood.

UNBLO'WN. *a.* Having the bud yet unexpanded (*Shakspeare*).

UNBLU'NTED. *a.* Not made obtuse (*Cowley*).

UNBO'DIED. *a.* 1. Incorporeal; immaterial (*Watts*). 2. Freed from the body (*Dryden*).

To UNBO'LT. *v. a.* To set open; to unbar.

UNBO'LTED. *a.* Coarse; gross; not refined, as flour, by bolting or sifting (*Shaks.*).

UNBO'NNETTED. *a.* Wanting a hat or bonnet (*Shakspeare*).

UNBOO'KISH. *a.* 1. Not studious of books. 2. Not cultivated by erudition (*Shakspeare*).

UNBO'RN. *a.* Not yet brought into life; future; being to come (*Dryden*).

UNBO'RROWED. *a.* Genuine; native; one's own (*Locke*).

To UNBO'SOM. *v. a.* 1. To reveal in confidence (*Milton*). 2. To open; to disclose (*Milton*).

UNBO'TTOMED. *a.* 1. Without bottom; bottomless (*Milton*). 2. Having no solid foundation (*Hammond*).

UNBO'UGHT. *a.* 1. Obtained without money (*Dryden*). 2. Not finding any purchaser (*Locke*).

UNBO'UND. *a.* 1. Loose; not tied. 2. Wanting a cover (*Locke*).

UNBOU'NDED. *a.* 1. Infinite; interminable (*Milton*). 2. Unlimited; unrestrained.

UNBO'UNDEDLY. *ad.* Without bounds; without limits (*Gov. of the Tongue*).

UNBOU'NDEDNESS. *s.* Exemption from limits (*Cheyne*).

UNBO'WED. *a.* Not bent (*Shakspeare*).

To UNBO'WEL. *v. n.* To exenterate; to eviscerate (*Hakewill*).

To UNBRA'CE. *v. a.* To loose; to relax (*Spenser*). 2. To make the clothes loose (*Shakspeare*).

UNBRE'ATHED. *a.* Not exercised (*Shakspeare*).

UNBRE'ATHING. *a.* Unanimated (*Shakspeare*).

UNBRE'D. *a.* 1. Not instructed in civility; ill educated (*Gov. of the Tongue*). 2. Not taught (*Dryden*).

UNBREE'CHED. *a.* Having no breeches.

UNBRI'BED. *a.* Not influenced by money or gifts (*Dryden*).

UNBRI'DLED. *a.* Licentious; not restrained.

UNBRO'KE. UNBRO'KEN. *a.* 1. Not violated (*Taylor*). 2. Not subdued; not weakened (*Dryden*). 3. Not tamed (*Addison*).

UNBRO'THERLIKE. UNBRO'THERLY. *a.* Ill-suiting with the character of a brother (*Decay of Piety*).

To UNBU'CKLE. *v. a.* To loose from buckles (*Pope*).

To UNBUI'LD. *v. a.* To raze; to destroy (*Shakspeare*).

UNBUI'LT. *a.* Not yet erected (*Dryden*).

UNBU'RIED. *a.* Not interred; not honoured with the rites of funeral (*Pope*).

UNBU'RNED. UNBU'RNT. *a.* 1. Not consumed; not wasted; not injured by fire (*Dryden*). 2. Not heated with fire (*Bacon*).

UNBU'RNING. *a.* Not consuming by heat.

To UNBU'RDEN. *v. a.* To rid of a load (*Shakspeare*). 2. To throw off (*Shakspeare*). 3. To disclose what lies heavy on the mind (*Shakspeare*).

To UNBU'TTON. *v. a.* To loose any thing buttoned (*Addison*).

UNCALCI'NED. *a.* Free from calcination.

UNCA'LLED. *a.* Not summoned; not sent for; not demanded (*Milton*).

To UNCA'LM. *v. a.* To disturb (*Dryden*).

UNCA'NCELLED. *a.* Not erased; not abrogated (*Dryden*).

UNCANO'NICAL. *a.* Not agreeable to the canons.

UNCA'PABLE. *a.* (*incapable*, Fr. *incapax*, Lat.) Not capable; not susceptible (*Ham.*).

UNCA'RED *for.* *a.* Not regarded; not attended to.

UNCA'RNATE. *a.* Not fleshly (*Brown*).

To UNCA'SE. *v. a.* 1. To disengage from any covering (*Addison*). 2. To flay; to strip (*Spenser*).

UNCA'UGHT. *a.* Not yet catched (*Gay*).

UNCAU'SED. *a.* Having no precedent cause.

UNCA'UTIOUS. *a.* Not wary; heedless.

UNCE'LEBRATED. *a.* Not solemnized.

UNCE'NSURED. *a.* Exempt from public reproach (*Pope*).

UNCE'RTAIN. *a.* (*incertain*, Fr. *incertus*, Latin.) 1. Doubtful; not certainly known (*Denham*). 2. Doubtful; not having certain knowledge (*Tillotson*). 3. Not sure in consequence (*Pope*). 4. Not exact; not sure (*Dryden*). 5. Unsettled; unregular (*Hooker*).

UNCE'RTAINTY. *s.* 1. Dubiousness; want of knowledge (*Denham*). 2. Inaccuracy (*Locke*). 3. Contingency; want of certainty (*South*). 4. Something unknown (*L'Estr.*).

To UNCHA'IN. *v. a.* To free from chains (*Prior*).

UNCHA'NGEABLE. *a.* Immutable; not subject to variation (*Hooker*).

UNCHA'NGEABLENESS. *s.* Immutability (*Newton*).

UNCHA'NGEABLY. *ad.* Immutability; without change (*South*).

UNCHA'NGED. *a.* 1. Not altered (*Taylor*). 2. Not alterable (*Pope*).

UNCHA'NGING. *a.* Suffering no alteration.

To UNCHA'RGE. *v. a.* To retract an accusation (*Shakspeare*).

UNCHA'RITABLE. *a.* Contrary to charity; contrary to the universal love prescribed by christianity (*Addison*).

UNCHA'RITABLENESS. *s.* Want of charity (*Atterbury*).

UNCHA'RITABLY. *ad.* In a manner contrary to charity (*Sprat*).

UNCHA'RY. *a.* Not wary; not cautious.

UNCHA'STE. *a.* Lewd; libidinous; not continent; not pure (*Taylor*).

UNCHA'STITY. *s.* Lewdness; incontinence (*Arbuthnot*).

UNCHE'CKED. *a.* Unrestrained; not fluctuated (*Milton*).

UNCHEE'RFULNESS. *s.* Melancholy; gloominess of temper (*Addison*).

UNCHE'WED. *a.* Not masticated (*Dryden*).

To UNCHI'LD. *v. a.* To deprive of children (*Shakspeare*).

UNCHRI'STIAN. *a.* 1. Contrary to the laws of christianity (*South*). 2. Unconverted; infidel (*Hooker*).

UNCHRI'STIANNESS. *s.* Contrariety to christianity (*K. Charles*).

UNCIA, a term generally used for the 12th part of a thing. In which sense it occurs in Latin writers, both for a weight, called by us an ounce, and a measure called an inch.

UNCIÆ, in algebra, first used by Vieta, are the numbers prefixed to the letters in the terms of any power of a binomial; now more usually, and generally, called coefficients. Thus, in the 4th power of $a + b$, viz.

$$a^4 + 4a^3b + 6a^2b^2 + 4ab^3 + b^4,$$

the unciæ are 1, 4, 6, 4, 1.

Briggs first shewed how to find these unciæ, one from another, in any power, independent of the foregoing powers. They are now usually found by what is called Newton's binomial theorem, which is the same rule as Briggs's in another form. See BINOMIAL.

UNCIFORM BONE. (*os unciforme*, from *uncus*, a hook, and *forma*, a likeness.) The last bone of the second row of the carpus or wrist, so named from its hook-like process, which projects towards the palm of the hand, and gives origin to the great ligament by which the tendons of the wrist are bound down.

UNCINATE. Uncinatus. In botany. Hooked at the end. As the awn of the seed in geum urbanum; and the stigma in viola, lantana, &c. This term is used, but not explained by Linnéus. In what it differs from *hamous* it is difficult to decide.

UNCIRCUMCI'SED. *a.* Not circumcised; not a Jew (*Cowley*).

UNCIRCUMCI'SION. *s.* Omission of circumcision (*Hammond*).

UNCIRCUMSCRI'BED. *a.* Unbounded; unlimited (*Addison*).

UNCI'RCUMSPECT. *a.* Not cautious; not vigilant (*Hayward*)

UNCIRCUMSTA'NTIAL. *a.* Unimportant.

UNCI'VIL. *a.* (*incivil*, French; *incivilis*, Latin.) Unpolite; not agreeable to the rules of elegance, or complaisance (*Whitgift*).

UNCI'VILIZED. *a.* 1. Not reclaimed from barbarity (*Pope*). 2. Coarse; indecent (*Addison*).

UNCI'VILLY. *ad.* Unpolitely; not complaisantly (*Brown*).

UNCLA'RIFIED. *a.* Not purged; not purified (*Bacon*).

To UNCLA'SP. *v. a.* To open what is shut with clasps (*Taylor*).

UNCLA'SSIC. *a.* Not classic (*Pope*).

U'NCLE. *s.* (*oncle*, French.) The brother of one's father or mother (*Shakspeare*).

UNCLE'AN. *s.* 1. Foul; dirty; filthy (*Dryden*). 2. Not purified by ritual practices. 3. Foul with sin (*Rogers*). 4. Lewd; unchaste (*Milton*).

UNCLE'ANLINESS. *s.* Want of cleanliness; dirtiness (*Clarendon*).

UNCLE'ANLY. *a.* 1. Foul; filthy; nasty (*Shakspeare*). 2. Indecent; unchaste (*Watts*).

UNCLE'ANNESS. *s.* 1. Lewdness; incontinence (*Graunt*). 2. Want of cleanliness; nastiness (*Taylor*). 3. Sin; wickedness. 4. Want of ritual purity.

UNCLE'ANSED. *a.* Not cleansed (*Bac.*).

To UNCLE'W. *v. a.* (from *clew.*) To undo any thing complicated (*Shakspeare*).

To UNCLE'NCH. *v. a.* To open the closed hand (*Garth*).

UNCLI'PPED. *a.* Whole; not cut (*Locke*).

To UNCLO'THE. *v. a.* To strip; to make naked (*Watts*).

To UNCLO'G. *v. a.* 1. To disencumber; to exonerate (*Shakspeare*). 2. To set at liberty (*Dryden*).

To UNCLO'ISTER. *v. n.* To set at large (*Norris*).

To UNCLO'SE. *v. a.* To open (*Pope*).

UNCLO'SED. *a.* Not separated by enclosures (*Clarendon*).

UNCLO'UDED. *a.* Free from clouds; clear from obscurity; not darkened (*Roscom.*).

UNCLO'UDEDNESS. *s.* Openness; freedom from gloom (*Boyle*).

UNCLO'UDY. *a.* Free from a cloud (*Gay*).

To UNCLU'TCH. *v. a.* To open (*Decay of Piety*).

To UNCO'IF. *v. a.* To pull the cap off.

To UNCOIL *v. a.* (from *coil.*) To open from being coiled or wrapped one part upon another (*Derham*).

UNCO'INED. *a.* Not coined (*Locke*).

UNCOLLE'CTED. *a.* Not collected; not recollected (*Prior*).

UNCO'LOURED. *a.* Not stained with any colour or die (*Bacon*).

UNCO'MBED. *a.* Not parted or adjusted by the comb (*Crashaw*).

UNCO'MELINESS. *s.* Want of grace; want of beauty (*Locke*).

UNCO'MELY. *a.* Not comely; wanting grace (*Clarendon*).

UNCO'MFORTABLE. *a.* 1. Affording n comfort; gloomy; dismal; miserable (*Wake*). 2. Receiving no comfort; melancholy.

UNCO'MFORTABLENESS. *s.* Want of cheerfulness (*Taylor*).

UNCOMMA'NDED. *a.* Not commanded.

UNCO'MMON. *a.* Not frequent; not often found or known (*Addison*).

UNCO'MMONNESS. *s.* Infrequency (*Addison*).

UNCOMPA'CT. *a.* Not compact; not closely cohering (*Addison*).

UNCOMMU'NICATED. *a.* Not communicated (*Hooker*).

UNCO'MPANIED. *a.* Having no companion.

UNCOMPA'SSIONATE. *a.* Having no pity.

UNCOMPE′LLED. *a.* Free from compulsion (*Pope*).

UNCOMPLAISA′NT. *a.* Not civil (*Locke*).

UNCOMPLE′TE. *a.* Not perfect; not finished (*Pope*).

UNCOMPO′UNDED. *a.* 1. Simple; not mixed (*Newton*). 2. Simple; not intricate (*Hammond*).

UNCOMPREHE′NSIVE. *a.* Unable to comprehend.

UNCOMPRE′SSED. *a.* Free from compression (*Boyle*).

UNCONCE′IVABLE. *a.* Not to be understood; not to be comprehended by the mind.

UNCONCE′IVABLENESS. *s.* Incomprehensibility (*Locke*).

UNCONCE′IVED. *a.* Not thought; not imagined (*Creech*).

UNCONCE′RN. *s.* Negligence; want of interest; freedom from anxiety; freedom from perturbation (*Swift*).

UNCONCE′RNED. *a.* 1. Having no interest (*Taylor*). 2. Not anxious; not disturbed; not affected (*Denham*).

UNCONCE′RNEDLY. *ad.* Without interest or affection; without anxiety (*Bentley*).

UNCONCE′RNEDNESS. *s.* Freedom from anxiety or perturbation (*South*).

UNCONCE′RNING. *a.* Not interesting; not affecting; not belonging to one (*Addison*).

UNCONCE′RNMENT. *s.* The state of having no share (*South*).

UNCONCLU′DENT. Unconclu′ding. *a.* Not decisive; inferring no plain or certain conclusion or consequence (*Locke*).

UNCONCLU′DINGNESS. *s.* Quality of being unconcluding (*Boyle*).

UNCONCO′CTED. *a.* Not digested; not matured (*Brown*).

UNCONDI′TIONAL. *a.* Absolute; not limited by any terms (*Dryden*).

UNCONFI′NABLE. *a.* Unbounded (*Shakspeare*).

UNCONFI′NED. *a.* 1. Free from restraint (*Pope*). 2. Having no limits; unbounded (*Spectator*).

UNCONFI′RMED. *a.* 1. Not fortified by resolution; not strengthened; raw; weak (*Daniel*). 2. Not strengthened by additional testimony (*Milton*). 3. Not settled in the church by the rite of confirmation.

UNCONFO′RM. *a.* Unlike; dissimilar; not analogous (*Milton*).

UNCONFO′RMABLE. *a.* Inconsistent; not conforming (*Watts*).

UNCONFO′RMITY. *s.* Incongruity; inconsistency (*South*).

UNCONFU′SED. *a.* Distinct; free from confusion (*Locke*).

UNCONFU′SEDLY. *ad.* Without confusion.

UNCONFU′TABLE. *a.* Irrefragable; not to be convicted of error (*Sprat*).

UNCONGE′ALED. *a* Not concreted by cold.

UNCO′NJUGAL. *a.* Not consistent with matrimonial faith; not befitting a wife or husband (*Milton*).

UNCONNE′CTED. *a.* Not coherent; not joined by proper transitions or dependence of parts; lax; loose; vague (*Watts*).

UNCONNI′VING. *a.* Not forbearing penal notice (*Milton*).

UNCO′NQUERABLE. *a.* Not to be subdued; insuperable; not to be overcome; invincible (*Pope*).

UNCO′NQUERABLY. *ad.* Invincibly; insuperably (*Pope*).

UNCO′NQUERED. *a.* Not subdued; not overcome (*Denham*). 2. Insuperable; invincible (*Sidney*).

UNCO′NSCIONABLE. *a.* 1. Exceeding the limits of any just claim or expectation (*L'Estrange*). 2. Forming unreasonable expectation (*Dryden*). 3. Enormous; vast. A low word (*Milton*). 4. Not guided or influenced by conscience (*South*).

UNCO′NSCIONABLY. *ad.* Unreasonably.

UNCO′NSCIOUS. *a.* 1. Having no mental perception (*Blackmore*). 2. Unacquainted; unknowing (*Pope*).

UNCO′NSECRATED. *a.* Not dedicated; not devoted (*South*).

UNCONSE′NTED. *a.* Not yielded (*Wake*).

UNCONSI′DERED. *a.* Not considered; not attended to (*Brown*).

UNCO′NSONANT. *a.* Incongruous; unfit; inconsistent (*Hooker*).

UNCO′NSTANT. *a.* (*inconstant*, French; *inconstans*, Latin.) Fickle; not steady; changeable; mutable (*May*).

UNCONSTRAI′NED. *a.* Free from compulsion (*Raleigh*).

UNCONSTRA′INT. *s.* Freedom from constraint; ease (*Felton*).

UNCONSU′LTING. *a.* (*inconsultus*, Lat.) Heady; rash; improvident; imprudent (*Sid.*).

UNCONSU′MED. *a.* Not wasted; not destroyed by any wasting power (*Milton*).

UNCONSU′MMATE. *a.* Not consummated.

UNCONTE′MNED. *a.* Not despised.

UNCONTE′NTED. *a.* Not contented; not satisfied (*Dryden*).

UNCONTE′NTINGNESS. *s.* Want of power to satisfy (*Boyle*).

UNCONTE′STABLE. *a.* Indisputable; not controvertible (*Locke*).

UNCONTE′STED. *a.* Not disputable; evident (*Blackmore*).

UNCONTRI′TE. Not religiously penitent (*Hammond*).

UNCONTRO′LLABLE. *a.* 1. Resistless; powerful beyond opposition (*Milton*). 2. Indisputable; irrefragable (*Howard*).

UNCONTRO′LLABLY. *ad.* 1. Without possibility of opposition. 2. Without danger of refutation (*Brown*).

UNCONTRO′LLED. *a.* 1. Unresisted; unopposed; not to be overruled (*Philips*). 2. Not convinced; not refuted (*Howard*).

UNCONTRO′LLEDLY. *ad.* Without control; without opposition (*Decay of Piety*).

UNCONTROVE′RTED. *a.* Not disputed; not liable to debate (*Glanville*).

UNCONVE'RSABLE. *a.* Not suitable to conversation; not social (*Rogers*).

UNCONVE'RTED. *a.* 1. Not persuaded of the truth of christianity (*Rogers*). 2. Not religious; not yet reduced to live a holy life.

To UNCO'RD. *v. a.* To loose a thing bound with cords.

UNCORRE'CTED. *a.* Inaccurate; not polished to exactness (*Dryden*).

UNCORRU'PT. *a.* Honest; upright; not tainted with wickedness; not influenced by iniquitous interest (*Hooker*).

UNCORRU'PTED. *a.* Not vitiated; not depraved (*Locke*).

To UNCO'VER. *v. a.* 1. To divest of a covering (*Locke*). 2. To deprive of clothes (*Shakspeare*). 3. To strip of the roof (*Prior*). 4. To show openly; to strip of a veil, or concealment (*Milton*). 5. To bare the head, as in the presence of a superior (*Shakspeare*).

UNCO'UNSELLABLE. *a.* Not to be advised.

UNCO'UNTABLE. *a.* Innumerable (*Raleigh*).

UNCO'UNTERFEIT. *a.* Genuine; not spurious (*Sprat*).

To UNCO'UPLE. *v. a.* To loose dogs from their couples (*Dryden*).

UNCO'URTEOUS. *a.* Uncivil; unpolite.

UNCO'URTLINESS. *s.* Unsuitableness of manners to a court (*Addison*).

UNCO'URTLY. *a.* Inelegant of manners; uncivil (*Swift*).

UNCO'UTH. *a.* (uncuð, Saxon.) Odd; strange; unusual (*Fairfax*).

UNCO'UTHNESS. *s.* Oddness; strangeness.

To UNCREA'TE. *v. a.* To annihilate; to reduce to nothing; to deprive of existence (*Pope*).

UNCREA'TED. *a.* 1. Not yet created (*Milton*). 2. (*incrée*, French.) Not produced by creation (*Blackmore*).

UNCRE'DITABLENESS. *s.* Want of reputation (*Decay of Piety*).

UNCRO'PPED. *a.* Not cropped; not gathered (*Milton*).

UNCRO'SSED. *a.* Uncancelled (*Shaks.*).

UNCRO'UDED. *a.* Not straitened by want of room (*Addison*).

To UNCRO'WN. *v. a.* To deprive of a crown; to deprive of sovereignty (*Dryden*).

U'NCTION. *s.* (*unction*, French.) 1. The act of anointing (*Hooker*). 2. Unguent; ointment (*Drayton*). 3. The act of anointing medically (*Arbuthnot*). 4. Any thing softening, or lenitive (*Shakspeare*). 5. The rite of anointing in the last hours (*Hammond*). 6. Any thing that excites piety and devotion.

UNCTION, in matters of religion, is used for the character conferred on sacred things by anointing them with oil. Unctions were very frequent among the Hebrews. They anointed both their kings and high-priests at the ceremony of their inauguration. They also anointed the sacred vessels of the tabernacle and temple, to sanctify and consecrate them to the service of God. The unction of kings is supposed to be a ceremony introduced very late among the Christian princes. It is said that none of the emperors were ever anointed before Justinian or Justin. The emperors of Germany took the practice from those of the eastern empire. King Pepin of France was the first who received the unction. In the ancient Christian church, unction always accompanied the ceremonies of baptism and confirmation. Extreme unction, or the anointing persons in the article of death, was also practised by the ancient Christians, in compliance with the precept of St. James, chap. v. 14th and 15th verses. After the Roman catholic religion found its way into the world, this, as well as many other of the practices of the earlier christians, became shockingly corrupted.

UNCTUO'SITY. *s.* Fatness; oiliness.

U'NCTUOUS. *a.* Fat; clammy; oily (*Shakspeare*).

U'NCTUOUSNESS. *s.* Fatness; oiliness; clamminess; greasiness (*Boyle*).

UNCU'LLED. *a.* Not gathered (*Milton*).

UNCU'LPABLE. *a.* Not blamable (*Hook.*).

UNCU'LTIVATED. *a.* (*incultus*, Latin.) 1. Not cultivated; not improved by tillage (*Locke*). 2. Not instructed; not civilized (*Roscommon*).

UNCU'MBERED. *a.* Not burdened; not embarrassed (*Dryden*).

UNCU'RBABLE. *a.* That cannot be curbed or checked (*Shakspeare*).

UNCU'RBED. *a.* Licentious; not restrained.

To UNCU'RL. *v. a.* To loose from ringlets or convolutions (*Dryden*).

To UNCU'RL. *v. n.* To fall from the ringlets.

UNCU'RRENT. *a.* Not current; not passing in common payment (*Shakspeare*).

To UNCU'RSE. *v. a.* To free from any execration (*Shakspeare*).

UNCU'T. *a.* Not cut (*Waller*).

To UNDA'M. *v. a.* To open; to free from the restraint of mounds (*Dryden*).

UNDA'MAGED. *a.* Not made worse; not impaired (*Philips*).

UNDATE. Undulate. In botany, waved. The surface rising and falling in waves, or obtusely; not in angles.—Applied to the leaf in potamogeton crispum; and to the corol in gloriosa.

Linnéus, in Philos. Bot. has only the second of these terms, which he applies to a leaf thus—folium undulatum fit, cum discus versus marginem convexe adscendit et descendit. In Term. Bot. we meet only with the first, thus explained—disco plicis obtusis alternatim flexo. In Delin. Pl. both terms occur. But they do not appear to be used in different senses, any more than patens and patula, valva and valvula, &c.

UNDA'UNTED. *a.* Unsubdued by fear; not depressed (*Dryden*).

UNDA'UNTEDLY. *a.* Boldly; intrepidly; without fear (*South*).

UNDA'ZZLED. *a.* Not dimmed, or confused by splendour (*Boyle*).

To UNDE'AF. *v. a.* To free from deafness (*Shakspeare*).

UNDEBA'UCHED. *a.* Not corrupted by debauchery (*Dryden*).

UNDECAGON, is a polygon of eleven sides.

If the side of a regular undecagon be 1, its area will be $9{\cdot}3656399 = \frac{11}{4} \times$ tang. of $73\frac{7}{11}$ degrees; and therefore if this number be multiplied by the square of the side of any other regular undecagon, the product will be the area of that undecagon.

UNDECA'YED. *a.* Not liable to be diminished (*Pope*).

UNDECA'YING. *a.* Not suffering diminution or declension (*Blackmore*).

To UNDECE'IVE. *v. a.* To set free from the influence of a fallacy (*Roscommon*).

UNDECE'IVABLE. *a.* Not liable to deceive, or be deceived (*Holder*).

UNDECE'IVED. *a.* Not cheated; not imposed on (*Dryden*).

UNDECEMVIR, a magistrate among the ancient Athenians, who had ten other colleagues or associates joined with him in the same commission. The functions of the undecemviri at Athens were much the same as those of the late *prevots de marechausse* in France. They took care of the apprehending of criminals; secured them in the hands of justice; and when they were condemned, took them again into custody, that the sentence might be executed on them. They were chosen by the tribes, each tribe naming its own; and as the number of the tribes after Calisthenes was but ten, which made ten numbers, a scribe or notary was added, which made the number eleven.

UNDECI'DED. *a.* Not determined; not settled (*Roscommon*).

UNDECI'SIVE. *a.* Not decisive; not conclusive (*Glanville*).

To UNDE'CK. *v. a.* To deprive of ornaments (*Shakspeare*).

UNDE'CKED. *a.* Not adorned; not embellished (*Milton*).

UNDECLI'NED. *a.* 1. Not grammatically varied by termination. 2. Not deviating; not turned from the right way (*Sandys*).

UNDE'DICATED. *a.* Not consecrated; not devoted. 2. Not inscribed to a patron (*Boyle*).

UNDEE'DED. *a.* Not signalised by action (*Shakspeare*).

UNDEFA'CED. *a.* Not deprived of its form; not disfigured (*Granville*).

UNDEFE'ASIBLE. *a.* Not defeasible; not to be vacated or annulled.

UNDEFI'ED. *a.* Not set at defiance; not challenged (*Dryden*).

UNDEFI'LED. *a.* Not polluted; not vitiated; not corrupted (*Milton*).

UNDEFI'NABLE. *a.* Not to be marked out, or circumscribed by a definition (*Locke*).

UNDEFI'NED. *a.* Not circumscribed, or explained by a definition (*Locke*).

UNDEFO'RMED. *a.* Not deformed; not disfigured (*Pope*).

UNDELI'BERATED. *a.* Not carefully considered (*Clarendon*).

UNDELI'GHTED. *a.* Not pleased; not touched with pleasure (*Milton*).

UNDELI'GHTFUL. *a.* Not giving pleasure (*Clarendon*).

UNDEMO'LISHED. *a.* Not razed; not thrown down (*Philips*).

UNDEMO'NSTRABLE. *a.* Not capable of fuller evidence (*Hooker*).

UNDENI'ABLE. *a.* Such as cannot be gainsaid (*Sidney*).

UNDENI'ABLY. *ad.* So plainly as to admit no contradiction (*Brown*).

UNDEPLO'RED. *a.* Not lamented (*Dryden*).

UNDEPRA'VED. *a.* Not corrupted (*Granville*).

UNDEPRI'VED. *a.* Not divested by authority; not stripped of any possession (*Dryden*).

U'NDER. *preposition.* (*undar*, Gothic; unꝺeꞃ, Saxon; *onder*, Dutch.) 1. In a state of subjection: *we were all* under *the king* (*Dryden*). 2. In the state of pupilage to: *I studied* under *one Wentworth* (*Denham*). 3. Beneath; so as to be covered or hidden: *his dagger was* under *his cloak* (*Dryden*). 4. Below in place; not above: *the parlour is* under *the chamber* (*Bacon*). 5. In a less degree than: *he acted* under *his natural strength* (*Dryden*). 6. For less than: *it was sold* under *the price.* 7. Less than; below: *nothing* under *royalty contented him* (*Collier*). 8. By the show of: *he escaped* under *the appearance of a messenger* (*Baker*). 9. With less than: *he would not speak* under *ten pounds* (*Swift*). 10. In the state of inferiority to; noting rank or order of precedence: *a viscount is* under *an earl* (*Addison*). 11. In a state of being loaded with: *he faints* under *his load* (*Shakspeare*). 12. In a state of oppression by, or subjection to: *the criminal was* under *the lash* (*Addison*). 13. In a state in which one is seized or overborn: *I was* under *great anxiety* (*Pope*). 14. In a state of being liable to, or limited by: *he acts* under *legal restraints* (*Locke*). 15. In a state of depression or dejection by: *he sunk* under *his father's influence* (*Shakspeare*). 16. In the state of being distinguished: *he was known* under *another name* (*Locke*). 17. In the state of: *he may do well* under *his present disposition* (*Swift*). 18. Not having reached or arrived to; noting time: *he is* under *fifteen* (*Spenser*). 19. Represented by: *it appeared* under *a fair form* (*Addison*). 20. In a state of protection: under *your direction I am safe* (*Collier*). 21. With respect to: *it is mentioned* under *two heads* (*Felton*). 22. Attested by: *I gave it* under *my hand.* 23. Subjected to; being the subject of: *all this was* under *consideration* (*Addison*). 24. In the next stage of subordination: *their hopes were in him* under *the general* (*Locke*). 25. In a state of relation that claims protection: *he was* under *his uncle's care.*

U'NDER. *ad.* 1. In a state of subjection (2

Chronicles). 2. Below; not above. 3. Less: opposed to *over* or *more* (*Addison*). 4. It has a signification resembling that of an adjective; lower in place; inferior; subject; subordinate (*Shakspeare*). 5. It is much used in composition, in several senses, which the following examples will explain.

UNDERA′CTION. *s.* Subordinate action; action not essential to the main story (*Dryden*).

To UNDERBE′AR. *v. a.* (*under* and *bear.*) 1. To support; to endure (*Shakspeare*). 2. To line; to guard: out of use (*Shakspeare*).

UNDERBEA′RER. *s.* (*under* and *bearer.*) In funerals, those that sustain the weight of the body, distinct from those who are bearers of ceremony, and only hold up the pall.

To UNDERBI′D. *v. a.* (*under* and *bid.*) To offer for any thing less than its worth.

UNDERCLE′RK. *s.* (*under* and *clerk.*) A clerk subordinate to the principal clerk (*Sw.*).

To UNDERDO′. *v. n.* (*under* and *do.*) 1. To act below one's abilities (*Ben Jonson*). 2. To do less than is requisite (*Grew*).

UNDERFA′CTION. *s.* Subordinate faction; subdivision of a faction (*Dec. of Piety*).

UNDERFE′LLOW. *s.* (*under* and *fellow.*) A mean man; a sorry wretch (*Sidney*).

UNDERFI′LLING. *s.* (*under* and *fill.*) Lower part of an edifice (*Wotton*).

To UNDERFO′NG. *v. a.* (*under* and ȝanȝan, Saxon.) To take in hand (*Spenser*).

To UNDERFU′RNISH. *v. a.* (*under* and *furnish.*) To supply with less than enough (*Collier*).

To UNDERGI′RD. *v. a.* (*under* and *gird.*) To bind round the bottom (*Acts*).

To UNDERGO′. *v. a.* (*under* and *go.*) 1. To suffer; to sustain; to endure evil (*Dryden*). 2 To support; to hazard: not used (*Shakspeare*). 3. To sustain; to be the bearer of; to possess: not used (*Shakspeare*). 4. To sustain; to endure without fainting (*Shakspeare*). 5. To pass through (*Arbuthnot*). 6. To be subject to (*Shakspeare*).

UNDERGROU′ND. *s.* (*under* and *ground.*) Subterraneous space (*Milton*).

UNDERGRO′WTH *s.* (*under* and *growth*). That which grows under the tall wood (*Milton*).

UNDERHA′ND. *ad.* (*under* and *hand.*) 1. By means not apparent; secretly (*Hooker*). 2. Clandestinely; with fraudulent secrecy.

UNDERHA′ND. *a.* Secret; clandestine; sly (*Addison*).

UNDERI′VED. *a.* (from *derived.*) Not borrowed (*Locke*).

UNDERLA′BOURER. *s.* (*under* and *labour.*) A subordinate workman (*Wilkins*).

To UNDERLA′Y. *v. a.* (*under* and *lay.*) To strengthen by something laid under.

UNDERLE′AF. *s.* (*under* and *leaf.*) A species of apple (*Mortimer*).

To UNDERLI′NE. *v. a.* (*under* and *line.*) 1. To mark with lines below the words. 2. To influence secretly (*Wotton*).

U′NDERLING. *s.* (from *under.*) An inferior agent; a sorry mean fellow (*Sidney*).

To UNDERMI′NE. *v. a.* (*under* and *mine.*) 1. To dig cavities under any thing, so that it may fall, or be blown up; to sap (*Pope*). 2. To excavate under (*Addison*). 3. To injure by clandestine means (*Locke*).

UNDERMI′NER. *s.* (from *undermine.*) 1. He that saps; he that digs away the supports. 2. A clandestine enemy (*South*).

U′NDERMOST. *a.* 1. Lowest in place (*Boyle*). 2. Lowest in state or condition.

UNDERNE′ATH. *ad.* (compounded from *under* and *neath*, of which we still retain the comparative *nether.*) In the lower place; below; under; beneath (*Addison*).

UNDERNE′ATH. *prep.* Under (*Sandys*).

UNDERO′FFICER. *s.* (*under* and *officer.*) An inferior officer; one in subordinate authority (*Ayliffe*).

UNDE′ROGATORY. *a.* Not derogatory (*Boyle*).

U′NDERPART. *s.* (*under* and *part.*) Subordinate, or unessential part (*Dryden*).

UNDERPE′TTICOAT. *s.* The petticoat worn next the body (*Spectator*).

To UNDERPI′N. *v. a.* (*under* and *pin.*) To prop; to support (*Hale*).

U′NDERPLOT. *s.* (*under* and *plot.*) 1. A series of events proceeding collaterally with the main story of a play, and subservient to it (*Dryden*). 2. A clandestine scheme (*Add.*).

To UNDERPRA′ISE. *v. a.* (*under* and *praise.*) To praise below desert (*Dryden*).

To UNDERPRI′ZE. *v. a.* (*under* and *prize.*) To value at less than the worth (*Shakspeare*).

To UNDERPRO′P. *v. n.* (*under* and *prop.*) To support; to sustain (*Fenton*).

UNDERPROPO′RTIONED. *a.* (*under* and *proportion.*) Having too little proportion (*Collier*).

UNDERPU′LLER. *s.* (*under* and *puller.*) Inferior or subordinate puller (*Collier*).

To UNDERRA′TE. *v. a.* (*under* and *rate.*) To rate too low.

UNDERRA′TE. *s.* (from the verb.) A price less than is usual (*Dryden*).

To UNDERSA′Y. *v. n.* (*under* and *say.*) To say by way of derogation: obsolete (*Spenser*).

UNDERSE′CRETARY. *s.* An inferior or subordinate secretary (*Bacon*).

To UNDERSE′LL. *v. a.* (*under* and *sell.*) To defeat, by selling for less; to sell cheaper than another (*Child*).

UNDERSE′RVANT. *s.* (*under* and *servant.*) A servant of the lower class (*Grew*).

To U′NDERSET. *v. a.* (*under* and *set.*) To prop; to support (*Bacon*).

UNDERSE′TTER. *s.* (from *underset.*) Prop; pedestal to support (1 *Kings*).

UNDERSE′TTING. *s.* (from *underset.*) Lower part; pedestal (*Wotton*).

UNDERSHE′RIFF. *s.* (*under* and *sheriff.*) The deputy of the sheriff (*Cleaveland*).

UNDERSHE′RRIFRY. *s.* The business, or office of an undersheriff (*Bacon*).

UNDERSHO′T. *part. a.* (*under* and *shot.*) Moved by water passing under it (*Carew*).

UNDERSO'NG. *s.* (*under* and *song.*) Chorus; burden of a song (*Dryden*).

To UNDERSTA'ND. *v. a.* preterit *understood.* (unꝺeꞃꞅꞇanꝺan, Saxon.) 1. To conceive with adequate ideas; to have full knowledge of; to comprehend (*Addison*). 2. To know the meaning of; to be able to interpret (*Milton*). 3. To suppose to mean (*Locke*). 4. To know by experience (*Milton*). 5. To know by instinct (*Milton*). 6. To interpret at least mentally; to conceive with respect to meaning (*Stillingfleet*). 7. To know another's meaning (*Milton*). 8. To hold in opinion with conviction (*Milton*). 9. To mean without expressing (*Milton*). 10. To know what is not expressed (*Milton*).

To UNDERSTA'ND. *v. n.* 1. To have use of the intellectual faculties; to be an intelligent conscious being (*Chronicles*). 2. To be informed by another (*Nehemiah*). 3. To have learned (*Milton*).

UNDERSTA'NDING. *s.* (from *understand.*) 1. Intellectual powers; faculties of the mind, especially those of knowledge and judgment (*Davies*). 2. Skill; exact comprehension (*Swift*). 3. Intelligence; terms of communication (*Clarendon*).

UNDERSTA'NDING. *a.* Knowing; skilful.

UNDERSTA'NDINGLY. *ad.* With knowledge (*Milton*).

UNDERSTRA'PPER. *s.* (*under* and *strap.*) A petty fellow; an inferior agent (*Swift*).

UNDERSWEN, or UNDERSEEN, a handsome town of Swisserland, in the canton of Bern, near which is the famous cavern of St. Pat. It is seated on the lake Thun, 25 miles S.S.E. of Bern, and 30 S.E. of Friburg. Lon. 7. 32 E. Lat. 46. 32 N.

To UNDERTA'KE. *v. a.* pret. *undertook*; part. pass. *undertaken.* (*underfangen*, Germ.) 1. To attempt; to engage in (*Roscommon*). 2. To assume a character: not used (*Shak.*). 3. To engage with; to attack (*Shakspeare*). 4. To have the charge of (*Shakspeare*).

To UNDERTA'KE. *v. n.* 1. To assume any business or province (*Milton*). 2. To venture; to hazard (*Shakspeare*). 3. To promise; to stand bound to some condition (*Woodward*).

UNDERTA'KER. *s.* (from *undertake.*) 1. One who engages in projects and affairs (*Clarendon*). 2. One who engages to build for another at a certain price (*Swift*). 3. One who manages funerals (*Young*).

UNDERTA'KING. *s.* (from *undertake.*) Attempt; enterprize; engagement (*Raleigh*).

UNDERTE'NANT. *s.* A secondary tenant; one who holds from him that holds from the owner (*Davies*).

UNDERVALUA'TION. *s.* (*under* and *value.*) Rate not equal to the worth (*Wotton*).

To UNDERVA'LUE. *v. a.* (*under* and *value.*) 1. To rate low; to esteem lightly; to treat as of little worth (*Atterbury*). 2. To depress; to make low in estimation; to despise (*Addison*).

UNDERVA'LUE. *s.* (from the verb.) Low rate; vile price (*Temple*).

UNDERVA'LUER. *s.* (from *undervalue.*) One who esteems lightly (*Walton*).

UNDERWALDEN, a canton of Swisserland, bounded on the N. by the canton of Lucern and the Lake of the Four Cantons; E. by high mountains which separate it from the canton of Uri; S. by Mount Brunich which parts it from the canton of Bern, and W. by that of Lucern. It is twenty-four miles long and twenty broad, and divided into the Upper and Lower Valley, by a forest called Kesterwald, which crosses the canton from N. to S. The country abounds in fruit and cattle, but produces little corn and grows no wine. The inhabitants are Roman Catholics. Stanz is the capital of the Lower Valley, and Sarnen of the Upper and of the whole canton.

U'NDERWOOD. *s.* (*under* and *wood.*) The low trees that grow among the timber (*Mortimer*).

U'NDERWORK. (*under* and *work.*) *s.* Subordinate business; petty affairs (*Addison*).

To U'NDERWORK. *v. a.* preterit and participle pass. *underworked* or *underwrought.* 1. To destroy by clandestine measures (*Shakspeare*). 2. To labour less than enough (*Dryden*). 3. To work at a price below the common.

UNDERWO'RKMAN. *s.* (*under* and *workman.*) An inferior or subordinate labourer.

To UNDERWRI'TE. *v. a.* (*under* and *write.*) To write under something else (*Sidney*).

UNDERWRI'TER. *s.* (from *underwrite*). An insurer; so called from writing his name under the conditions.

UNDESCRI'BED. *a.* Not described (*Collier*).

UNDESCRI'ED. *a.* Not seen; unseen; undiscovered.

UNDESE'RVED. *a.* 1. Not merited; not obtained by merit (*Sidney*). 2. Not incurred by fault (*Addison*).

UNDESE'RVEDLY. *ad.* Without desert, whether of good or ill (*Dryden*).

UNDESE'RVER. *s.* One of no merit (*Shakspeare*).

UNDESE'RVING. *a.* 1. Not having merit; not having any worth (*Atterbury*). 2. Not meriting any particular advantage or hurt (*Pope*).

UNDESI'GNED. *a.* Not intended; not purposed (*Blackmore*).

UNDESI'GNING. *a.* 1. Not acting with any set purpose (*Blackmore*). 2. Having no artful or fraudulent schemes; sincere (*South*).

UNDESI'RABLE. *a.* Not to be wished; not pleasing (*Milton*).

UNDESI'RING. *a.* Negligent; not wishing.

UNDESTROY'ABLE. *a.* Indestructible; not susceptible of destruction: not in use (*Boyle*).

UNDETE'RMINABLE. *a.* Impossible to be decided (*Wotton*).

UNDETE'RMINATE. *a.* 1. Not settled; not decided; contingent. Regularly, *indeterminate* (*South*). 2. Not fixed (*More*).

UNDETE'RMINATENESS. UNDETERMINA'TION. *s.* (from *undeterminate.*) 1. Uncertainty; indecision (*Hale*). 2. The state of not being fixed, or invincibly directed (*More*).

UNDETE'RMINED. *a.* 1. Unsettled; undecided (*Milton*). 2. Not limited; not regulated (*Hale*).

UNDIAPHA'NOUS. *a.* Not pellucid; not transparent (*Boyle*).

UNDIGE'STED. *a.* Not concocted; not subdued by the stomach (*Denham*).

UNDI'GHT. *preterit.* Put off (*Spenser*).

UNDIMI'NISHED. *a.* Not impaired; not lessened (*Addison*).

UNDI'PPED. *a.* Not dipped; not plunged (*Dryden*).

UNDIRE'CTED. *a.* Not directed (*Blackmore*).

UNDISCE'RNED. *a.* Not observed; not discovered; not descried (*Dryden*).

UNDISCE'RNEDLY. *ad.* So as to be undiscovered (*Boyle*).

UNDISCE'RNIBLE. *a.* Not to be discerned; invisible (*Rogers*).

UNDISCE'RNIBLY. *ad.* Invisibly; imperceptibly (*South*).

UNDISCE'RNING. *a.* Injudicious; incapable of making due distinction (*Donne*).

UNDI'SCIPLINED. *a.* 1. Not subdued to regularity and order (*Taylor*). 2. Untaught; uninstructed (*K. Charles*).

UNDISCO'RDING. *a.* Not disagreeing; not jarring in music (*Milton*).

UNDISCO'VERABLE. *a.* Not to be found out (*Rogers*).

UNDISCO'VERED. *a.* Not seen; not descried; not found out (*Dryden*).

UNDISCREE'T. *a.* Not wise; imprudent.

UNDISGUI'SED. *a.* Open; artless; plain.

UNDISMA'YED. *a.* Not discouraged; not depressed with fear (*Milton*).

UNDISOBLI'GING. *a.* Inoffensive (*Br.*).

UNDISPO'SED. *a.* Not bestowed (*Swift*).

UNDISPU'TED. *a.* Incontrovertible; evident.

UNDISSE'MBLED. *a.* 1. Openly declared. 2. Honest; not feigned (*Atterbury*).

UNDI'SSIPATED. *a.* Not scattered; not dispersed (*Boyle*).

UNDISSO'LVING. *a.* Never melting.

UNDISTE'MPERED. *a.* 1. Free from disease. 2. Free from perturbation (*Temple*).

UNDISTI'NGUISHABLE. *a.* 1. Not to be distinctly seen (*Rogers*). 2. Not to be known by any peculiar property (*Locke*).

UNDISTIN'GUISHED. *a.* 1. Not marked out so as to be known from each other (*Locke*). 2. Not to be seen otherwise than confusedly; not separately and plainly descried (*Dryden*). 3. Not plainly discerned (*Swift*). 4. Admitting nothing between; having no intervenient space (*Shakspeare*). 5. Not marked by any particular property. 6. Not treated with any particular respect.

UNDISTI'NGUISHING. *a.* Making no difference (*Addison*).

UNDISTRA'CTED. *a.* Not perplexed by contrariety of thoughts or desires (*Boyle*).

UNDISTRA'CTEDLY. *a.* Without disturbance from contrariety of sentiments (*Boyle*).

UNDISTRA'CTEDNESS. *s.* Freedom from interruption by different thoughts (*Boyle*).

UNDISTU'RBED. *a.* 1. Free from perturbation; calm; tranquil; placid (*Atterbury*). 2. Not interrupted by any hinderance or molestation (*Dryden*). 3. Not agitated (*Dryd.*).

UNDISTU'RBEDLY. *ad.* Calmly; peacefully.

UNDIVI'DABLE. *a.* Not separable; not susceptible of division (*Shakspeare*).

UNDIVI'DED. *a.* Unbroken; whole; not parted (*Taylor*).

UNDIVU'LGED. *a.* Secret; not promulgated (*Shakspeare*).

To UNDO'. *v. a.* preterit *undid*; participle passive *undone*. 1. To ruin; to bring to destruction (*Hayward*). 2. To loose; to open what is shut or fastened; to unravel (*Sidney*). 3. To change any thing done to its former state; to recall, or annul any action (*Hooker*).

UNDO'ING. *a.* Ruining; destructive.

UNDO'ING. *s.* Ruin; destruction; fatal mischief (*Rowe*).

UNDO'NE. *a.* 1. Not done; not performed (*Clarendon*). 2. Ruined; brought to destruction (*Glanville*).

UNDO'UBTED. *a.* Indubitable; indisputable; unquestionable (*Waller*).

UNDO'UBTEDLY. *ad.* Indubitably; without question; without doubt (*Tillotson*).

UNDOU'BTING. *a.* Admitting no doubt.

UNDRE'ADED. *a.* Not feared (*Milton*).

UNDRE'AMED. *a.* Not thought on (*Sh.*).

To UNDRE'SS. *v. a.* (from *dress.*) 1. To divest of clothes; to strip (*Suckling*). 2. To divest of ornaments, or the attire of ostentation (*Prior*).

UNDRE'SS. *s.* A loose or negligent dress (*Dryden*).

UNDRE'SSED. *a.* 1. Not regulated (*Dry.*). 2. Not prepared for use (*Arbuthnot*).

UNDRO'SSY. *a.* Free from recrement (*Philips*).

UNDU'BITABLE. *a.* Not admitting doubt; unquestionable (*Locke*).

UNDU'E. *a.* (*indue*, Fr.) 1. Not right; not legal (*Bacon*). 2. Not agreeable to duty (*Atterbury*).

U'NDULARY. *a.* (from *undulo*, Latin.) Playing like waves; playing with intermissions (*Brown*).

To U'NDULATE. *v. a.* (from *undulo*, Lat.) To drive backward and forward; to make to play as waves (*Holder*).

To U'NDULATE. *v. n.* To play as waves in curls (*Pope*).

UNDULATION, in physics, a kind of tremulous motion or vibration observable in a liquid, whereby it alternately rises and falls like the waves of the sea. This undulatory motion, if the liquid be smooth and at rest, is propagated in concentric circles, as most people have observed upon throwing a stone, or other matter, upon the surface of a stagnant water, or even upon touching the surface of the water lightly with the finger, or the like. The reason of these circular undulations is, that by touching the surface with your finger, there is produced a depression of the water in the place of contact. By this depression the subjacent parts are moved successively out of their place, and the other adjacent parts thrust upwards, which lying successively on the descending liquid, follow it; and thus the parts of the liquid are alternately raised and depressed, and that circularly. When a stone is thrown into the liquid, the reciprocal vibrations are more conspicuous: here the water, in the place of immersion, rising higher by means of the impulse or rebound, till it comes to fall again, gives an impulse to the adjoining liquid, by which means that is likewise raised about the place of the stone as about a centre, and forms the first undulous circle; this falling again gives another impulse to the fluid next to it, further from the centre, which rises likewise in a circle; and thus successively greater and greater circles are produced.

UNDULATION, in medicine, the term used by some to express an uneasy sensation in the heart, of an undulatory motion, which may sometimes be perceived externally.

UNDULATION, or **BEAT**, in music, is used for that rattling, or jarring of sounds, which is observed, chiefly, when discordant notes are sounded together.

The phenomenon is more fully described thus, by Dr. Smith. In tuning musical instruments, especially organs, it is a known thing, that while a consonance is imperfect, it is not smooth and uniform, as when perfect, but interrupted with very sensible undulations or beats; which, while the two sounds continue at the same pitch, succeed one another in equal times, and in longer and longer times, while either of the sounds approach gradually to a perfect consonance with the other, till at last the undulations vanish, and leave smooth, uniform consonance. Smith's Harmonics, p. 107.

This learned author observes farther, that quicker undulations are beats, and are remarkably disagreeable in a concert of strong, treble voices, when some of them are out of tune; or in a ring of bells ill tuned, the hearer being near the steeple; or in a full organ badly tuned. Nor can the best tuning wholly prevent that disagreeable battering of the ears with a constant rattling noise of beats, quite different from all musical sounds, and destructive of them, and chiefly caused by the compound stops called the cornet and sesquialter, and by all other loud stops of a high pitch, when mixed with the rest. But if we be content with compositions of unisons and octaves to the diapason, whatever be the quality of their sounds, the best manner of tuning will render the noise of their beats inoffensive, if not imperceptible.

The doctor has with great ingenuity deduced the theory of these undulations from his principles, and has applied his doctrine to the tuning of instruments; by which he has shewn, that a person of no ear at all for music may soon learn to tune an organ, according to any proposed temperament of the scale, and to any desired degree of exactness, far beyond what the finest ear, unassisted by theory, can possibly attain to. This may be done by counting the number of undulations in a certain time, such as fifteen seconds. See the treatise before cited, prop. xv. p. 215. and the table, p. 244. plate 20.

From this ingenious theory the learned author has demonstrated several errors in what monsieur Sauveur has delivered concerning these undulations or beats. See Harmonics, Scholium 2. p. 115.

U′NDULATORY. *s.* (from *undulate*.) Moving in the manner of waves (*Arbuthnot*).

UNDU′LY. *ad.* Not properly; not according to duty (*Sprat*).

UNDU′TEOUS. *a.* Not performing duty; irreverent; disobedient (*Shakspeare*).

UNDU′TIFUL. *a.* Not obedient; not reverent (*Tillotson*).

UNDU′TIFULLY. *a.* Not according to duty (*Dryden*).

UNDU′TIFULNESS. *s.* Want of respect; irreverence; disobedience (*Spenser*).

UNDY′ING. *a.* Not destroyed; not perishing (*Milton*).

UNE′ARNED. *a.* Not obtained by labour or merit (*Philips*).

UNE′ARTHED. *a.* Driven from the den in the ground (*Thomson*).

UNE′ASILY. *ad.* Not without pain (*Tillotson*).

UNE′ASINESS. *s.* Trouble; perplexity; state of disquiet (*Rogers*).

UNE′ASY. *a.* 1. Painful; giving disturbance (*Taylor*). 2. Disturbed; not at ease (*Tillotson*). 3. Constraining; cramping (*Roscommon*). 4. Constrained; not disengaged (*Locke*). 5. Peevish; difficult to please (*Addison*) 6. Difficult: out of use (*Shaks.*).

UNE′ATH. *ad.* (from *eath*, eað, Saxon, easy.) 1. Not easily: out of use (*Shakspeare*). 2. It seems in *Spenser* to signify the same as *beneath*. Under; below.

UNE′DIFYING. *a.* Not improving in good life (*Atterbury*).

UNE′LIGIBLE. *a.* Not proper to be chosen.

UNEMPLO′YED. *a.* 1. Not busy; at leisure; idle (*Milton*). 2. Not engaged in any particular work (*Dryden*).

UNENDO′WED. *a.* Not invested; not graced (*Clarendon*).

UNENGA′GED. *a.* Not engaged; not appropriated (*Swift*).

UNENJO′YED. *a.* Not obtained; not possessed (*Dryden*).

UNENJO′YING. *a.* Not using; having no fruition (*Creech*).

UNENLA′RGED. *a.* Not enlarged; narrow; contracted (*Watts*).

UNENLI′GHTENED. *a.* Not illuminated (*Atterbury*).

UNENSLA′VED. *a.* Free; not enthralled.

UNENTERTA′INING. *a.* Giving no delight; giving no entertainment (*Pope*).

UNENTO'MBED. *a.* Unburied (*Dryd.*).

UNE'NVIED. *a.* Exempt from envy (*Bacon*).

UNE'QUABLE. *a.* Different from itself; diverse (*Bentley*).

UNE'QUAL. *a.* (*inæqualis*, Latin.) 1. Not even (*Shakspeare. Dryden*). 2. Not equal; inferior (*Arbuthnot*). 3. Partial; not bestowing on both the same advantages (*Denham*). 4. (*inegal*, French.) Disproportionate; ill matched (*Pope*). 5. Not regular; not uniform (*Dryden*).

UNE'QUALABLE. *a.* Not to be equalled; not to be paralleled (*Boyle*).

UNE'QUALLED. *a.* Unparalleled; unrivalled in excellence (*Roscommon*).

UNE'QUALLY. *ad.* In different degrees; in disproportion one to the other (*Pope*).

UNE'QUALNESS. *s.* Inequality; state of being unequal.

UNE'QUITABLE. *a.* Not impartial; not just.

UNE'RRABLENESS. *s.* Incapacity of error (*Decay of Piety*).

UNE'RRING. *a.* (*inerrans*, Latin.) 1. Committing no mistake (*Rogers*). 2. Incapable of failure; certain (*Denham*).

UNE'RRINGLY. *ad.* Without mistake.

UNESCHE'WABLE. *a.* Inevitable; unavoidable; not to be escaped: not in use.

UNESPI'ED. *a.* Not seen; undiscovered; undescried (*Hooker*).

UNESSE'NTIAL. *a.* 1. Not being of the last importance; not constituting essence (*Addison*). 2. Void of real being (*Milton*).

UNESTA'BLISHED. *a.* Not established.

UNE'VEN. *a.* 1. Not even; not level (*Knolles*). 2. Not suiting each other; not equal.

UNEVEN NUMBER, the same as odd number, or such as cannot be divided by two without leaving one remaining. The series of uneven numbers are 1, 3, 5, 7, 9, &c. See NUMBER, and ODD NUMBER.

UNE'VENNESS. *s.* 1. Surface not level; inequality of surface (*Newton*). 2. Turbulence; changeable state (*Hale*). 3. Not smoothness (*Burnet*).

UNE'VITABLE. *a.* (*inevitabilis*, Latin.) Inevitable; not to be escaped (*Sidney*).

UNEXA'CTED. *a.* Not exacted; not taken by force (*Dryden*).

UNEXA'MINED. *a.* Not inquired; not tried; not discussed (*Ben Jonson*).

UNEXA'MPLED. *a.* Not known by any precedent or example (*Philips*).

UNEXCE'PTIONABLE. *a.* Not liable to any objection (*Atterbury*).

UNEXCI'SED. *a.* Not subject to the payment of excise (*Brown*).

UNEXCO'GITABLE. *a.* Not to be found out (*Raleigh*).

UNE'XECUTED. *a.* Not performed; not done (*Shakspeare*).

UNEXE'MPLIFIED. *a.* Not made known by instance or example (*Southwell*).

UNEXE'MPT. *a.* Not free by peculiar privilege (*Milton*).

UNE'XERCISED. *a.* Not practised; not experienced (*Locke*).

UNEXHA'USTED. *a.* (*inexhaustus*, Latin.) Not spent; not drained to the bottom (*Addison*).

UNEXPA'NDED. *a.* Not spread out (*Blackmore*).

UNEXPE'CTED. *a.* Not thought on; sudden; not provided against (*Swift*).

UNEXPE'CTEDLY. *ad.* Suddenly; at a time unthought of (*Wake*).

UNEXPE'CTEDNESS. *s.* Suddenness; unthought of time or manner (*Watts*).

UNEXPE'DIENT. *a.* Inconvenient; not fit.

UNEXPE'RIENCED. *a.* Not versed; not acquainted by trial or practice (*Wilkins*).

UNEXPE'RT. *a.* (*inexpertus*, Lat.) Wanting skill or knowledge (*Prior*).

UNEXPLO'RED. *a.* 1. Not searched out. 2. Not tried; not known (*Dryden*).

UNEXPO'SED. *a.* Not laid open to censure (*Watts*).

UNEXPRE'SSIBLE. *a.* Ineffable; not to be uttered (*Tillotson*).

UNEXPRE'SSIVE. *a.* 1. Not having the power of uttering or expressing. 2. Unutterable; ineffable. Improper (*Milton*).

UNEXTE'NDED. *a.* Occupying no assignable space; having no dimensions (*Locke*).

UNEXTI'NGUISHABLE. *a.* Unquenchable; not to be put out (*Bentley*).

UNEXTI'NGUISHED. *a.* (*inextinctus*, Latin.) 1. Not quenched; not put out (*Lyttelton*). 2. Not extinguishable (*Dryden*).

UNFA'DED. *a.* Not withered (*Dryden*).

UNFA'DING. *a.* Not liable to wither (*Pope*).

UNFA'ILING. *a.* Certain; not missing (*Dryden*).

UNFA'IR. *a.* Disengenuous; subdolous; not honest (*Swift*).

UNFA'ITHFUL. *a.* 1. Perfidious; treacherous. 2. Impious; infidel (*Milton*).

UNFA'ITHFULLY. *ad.* Treacherously; perfidiously (*Bacon*).

UNFA'ITHFULNESS. *s.* Treachery; perfidiousness (*Boyle*).

UNFA'MILIAR. *a.* Unaccustomed; such as is not common (*Hooker*).

UNFA'SHIONABLE. *a.* Not modish; not according to the reigning custom (*Watts*).

UNFA'SHIONABLENESS. *s.* Deviation from the mode.

UNFA'SHIONABLY. *ad.* 1. Not according to the fashion. 2. Unartfully (*Shakspeare*).

UNFA'SHIONED. *a.* 1. Not modified by art (*Dryden*). 2. Having no regular form.

To UNFA'STEN. *v. a.* To loose; to unfix (*Sidney*).

UNFA'THERED. *a.* Fatherless; having no father (*Shakspeare*).

UNFA'THOMABLE. *a.* 1. Not to be sounded by a line (*Addison*). 2. That of which the end or extent cannot be found (*Bentley*).

UNFA'THOMABLY. *ad.* So as not to be sounded (*Thomson*).

UNF'ATHOMED. *a.* Not to be sounded (*Dryden*).

UNFATI'GUED. *a.* Unwearied; untired (*Philips*).

UNFA'VOURABLE. *a.* Not kind.

UNFA'VOURABLY. *ad.* 1. Unkindly; unpropitiously. 2. So as not to countenance, or support (*Clarendon*).

UNFEA'RED. *a.* 1. Not affrighted; intrepid; not terrified: not in use (*Ben Jonson*). 2. Not dreaded; not regarded with terrour.

UNFEA'SIBLE. *a.* Impracticable.

UNFEA'THERED. *a.* Implumous; naked of feathers (*Dryden*).

UNFE'ATURED. *a.* Deformed; wanting regularity of features (*Dryden*).

UNFE'D. *a.* Not supplied with food (*Roscommon*).

UNFE'ED. *a.* Unpaid (*Shakspeare*).

UNFE'ELING. *a.* Insensible; void of mental sensibility (*Pope*).

UNFE'IGNED. *a.* Not counterfeited; not hypocritical; real; sincere (*Sprat*).

UNFE'IGNEDLY. *ad.* Really; sincerely; without hypocrisy (*Common Prayer*).

UNFE'LT. *a.* Not felt; not perceived (*Shakspeare*).

UNFE'NCED. *a.* 1. Naked of fortification (*Shakspeare*). 2. Not surrounded by any enclosure.

UNFERME'NTED. *a.* Not fermented (*Arbuthnot*).

UNFE'RTILE. *a.* Not fruitful; not prolific (*Decay of Piety*).

To UNFE'TTER. *v. a.* To unchain; to free from shackles (*Thomson*).

UNFI'GURED. *a.* Representing no animal form (*Wotton*).

UNFI'LLED. *a.* Not filled; not supplied (*Taylor*).

UNFI'LIAL. *a.* Unsuitable to a son (*Boyle*).

UNFI'NISHED. *a.* Incomplete; not brought to an end; not brought to perfection; imperfect; wanting the last hand (*Swift*).

UNFI'RM. *a.* 1. Weak; feeble (*Shakspeare*). 2. Not stable (*Dryden*).

UNFI'T. *a.* 1. Improper; unsuitable (*Hooker*). 2. Unqualified (*Watts*).

To UNFIT. *v. a.* To disqualify (*Gov. of Tongue*).

UNFI'TLY. *ad.* Not properly; not suitably (*Hooker*).

UNFI'TNESS. *s.* 1. Want of qualifications (*Hooker*). 2. Want of propriety.

UNFI'TTING. *a.* Not proper (*Camden*).

To UNFI'X. *v. a.* 1. To loosen; to make less fast (*Shakspeare*). 2. To make fluid (*Dryden*).

UNFI'XED. *a.* 1. Wandering; erratic; inconstant; vagrant (*Pope*). 2. Not determined (*Dryden*).

UNFLE'DGED. *a.* That has not yet the full furniture of feathers; young; not completed by time; not having attained full growth.

UNFLE'SHED. *a.* Not fleshed; not seasoned to blood; raw (*Cowley*).

UNFO'ILED. *a.* Unsubdued; not put to the worst (*Temple*).

To UNFO'LD. *v. a.* 1. To expand; to spread; to open (*Milton*). 2. To tell; to declare (*Shakspeare*). 3. To discover; to reveal (*Newton*). 4. To display; to set in view (*Burnet*). 5. To release or dismiss from a fold (*Shakspeare*).

To UNFO'OL. *v. a.* To restore from folly (*Shakspeare*).

UNFORBI'D. UNFORBIDDEN. *a.* Not prohibited (*Milton. Norris*).

UNFORBI'DDENNESS. *s.* The state of being unforbidden (*Boyle*).

UNFO'RCED. *a.* 1. Not compelled; not constrained (*Dryden*). 2. Not impelled (*Donne*). 3. Not feigned (*Hayward*). 4. Not violent; easy; gradual (*Denham*). 5. Not contrary to ease (*Dryden*).

UNFO'RCIBLE. *a.* Wanting strength (*Hooker*).

UNFOREBO'DING. *a.* Giving no omens (*Pope*).

UNFOREKNO'WN. *a.* Not foreseen by prescience (*Milton*).

UNFORESE'EN. *a.* Not known before it happened (*Dryden*).

UNFORESKI'NNED. *a.* Circumcised (*Milton*).

UNFO'RFEITED. *a.* Not forfeited (*Rogers*).

UNFORGI'VING. *a.* Relentless; implacable (*Dryden*).

UNFORGO'TTEN. *a.* Not lost to memory.

UNFO'RMED. *a.* Not modified into regular shape (*Spectator*).

UNFORSA'KEN. *a.* Not deserted (*Ham.*).

UNFO'RTIFIED. *a.* 1. Not secured by walls or bulwarks (*Pope*). 2. Not strengthened; infirm; weak; feeble (*Shakspeare*). 3. Wanting securities (*Collier*).

UNFO'RTUNATE. *a.* Not successful; unprosperous; wanting luck; unhappy (*Taylor*).

UNFO'RTUNATELY. *ad.* Unhappily; without good luck (*Wilkins*).

UNFO'RTUNATENESS. *s.* Ill luck (*Sidney*).

UNFO'UGHT. *a.* Not fought (*Knolles*).

UNFOU'LED. *a.* Unpolluted; uncorrupted; not soiled (*More*).

UNFRA'MED. *a.* Not formed; not fashioned (*Dryden*).

UNFRE'QUENT. *a.* Uncommon; not happening often (*Brown*).

To UNFREQUE'NT. *v. a.* To leave; to cease to frequent. A bad word (*Philips*).

UNFREQUE'NTED. *a.* Rarely visited; rarely entered (*Roscommon*).

UNFRE'QUENTLY. *ad.* Not commonly.

UNFRIE'NDED. *a.* Wanting friends; uncountenanced; unsupported (*Shakspeare*).

UNFRIE'NDLINESS. *s.* (from *unfriendly.*) Want of kindness; want of favour.

UNFRIE'NDLY. *ad.* Not benevolent; not kind (*Rogers*).

UNFRO'ZEN. *a.* Not congealed to ice.

UNFRUI'TFUL. *a.* 1. Not prolific (*Pope*). 2. Not fructiferous (*Waller*). 3. Not fertile (*Mortimer*). 4. Not producing good effects.

To UNFU'RL. *v. a.* To expand; to unfold; to open (*Addison*).

To UNFU'RNISH. *v. a.* 1. To deprive; to strip; to divest (*Shakspeare*). 2. To leave naked (*Shakspeare*).

UNFU'RNISHED. *a.* 1. Not accommodated with utensils, or decorated with ornaments (*Locke*). 2. Unsupplied.

UNGA'IN. UNGA'INLY. *a.* (unȝenȝ, Saxon.) Awkward; uncouth (*Swift*).

UNGA'LLED. *a.* Unhurt; unwounded (*Shakspeare*).

UNGA'RTERED. *a.* Being without garters.

UNGA'THERED. *a.* Not cropped; not picked (*Dryden*).

UNGELD, compounded of the negative *un*, and *gildan*, to pay, in our ancient customs, a person out of the protection of the law; so that if he were murdered, no geld, or fine, was to be paid in the way of compensation by him that killed him. See GELD, and ÆSTIMATIO CAPITIS.

Si Frithman, i. e. homo pacis, fugiat & repugnet, & se nolit indicare; si occidatur, jaceat ungeld, i. e. no pecuniary compensation shall be made for his death. (*Skinner.*) Ungilda akere, mentioned in Brompton, has much the same signification, viz. where any man was killed, attempting any felony, he was to lie in the field unburied, and no pecuniary compensation was to be made for his death.

UNGE'NERATED. *a.* Unbegotten; having no beginning (*Raleigh*).

UNGE'NERATIVE. *a.* Begetting nothing (*Shakspeare*).

UNGE'NEROUS. *a.* 1. Not able; not ingenuous; not liberal (*Pope*). 2. Ignominious (*Addison*).

UNGE'NIAL. *a.* Not kind or favourable to nature (*Swift*).

UNGE'NTLE. *a.* Harsh; rude; rugged (*Shakspeare*).

UNGE'NTLEMANLY. *ad.* Illiberal; not becoming a gentleman (*Clarendon*).

UNGE'NTLENESS. *s.* 1. Harshness; rudeness; severity (*Tusser*). 2. Unkindness; incivility (*Shakspeare*).

UNGE'NTLY. *ad.* Harshly; rudely (*Shakspeare*).

UNGEOME'TRICAL. *a.* Not agreeable to the laws of geometry (*Cheyne*).

UNGI'LDED. *a.* Not overlaid with gold (*Dryden*).

To UNGI'RD. *v. a.* To loose any thing bound with a girdle (*Genesis*).

UNGI'RT. *a.* Loosely dressed (*Waller*).

UNGI'VING. *a.* Not bringing gifts (*Dryden*).

UNGLO'RIFIED. *a.* Not honoured; not exalted with praise and adoration (*Hooker*).

UNGLO'VED. *a.* Having the hand naked.

To UNGLU'E. *v. a.* To loose any thing cemented (*Harvey*).

To UNGO'D. *v. a.* To divest of divinity (*Dryden*).

UNGO'DLILY. *ad.* Impiously; wickedly (*Government of the Tongue*).

UNGO'DLINESS. *s.* Impiety; wickedness; neglect of God (*Tillotson*).

UNGO'DLY. *a.* 1. Wicked; negligent of God and his laws (*Rogers*). 2. Polluted by wickedness (*Shakspeare*).

UNGO'RED. *a.* Unwounded; unhurt (*Shakspeare*).

UNGO'RGED. *a.* Not filled; not sated.

UNGO'T. *a.* 1. Not gained; not acquired. 2. Not begotten (*Waller*).

UNGO'VERNABLE. *a.* 1. Not to be ruled; not to be restrained (*Glanville*). 2. Licentious; wild; unbridled (*Atterbury*).

UNGO'VERNED. *a.* 1. Being without government (*Shakspeare*). 2. Not regulated; unbridled; licentious (*Dryden*).

UNGRA'CEFUL. *a.* Wanting elegance; wanting beauty (*Addison*).

UNGRA'CEFULNESS. *s.* Inelegance; awkwardness (*Locke*).

UNGRA'CIOUS. *a.* 1. Wicked; odious; hateful (*Spenser*). 2. Offensive; unpleasing (*Dryden*). 3. Unacceptable; not favoured (*Clarendon*).

UNGRAMMA'TICAL. *a.* Not according to grammar.

UNGRA'NTED. *a.* Not given; not yielded; not bestowed (*Dryden*).

UNGRA'TEFUL. *a.* 1. Making no returns, or making ill returns for kindness (*South*). 2. Making no returns for culture (*Dryden*). 3. Unpleasing; unacceptable (*Atterbury*).

UNGRA'TEFULLY. *ad.* 1. With ingratitude (*Glanville*). 2. Unacceptably; unpleasingly.

UNGRA'TEFULNESS. *s.* 1. Ingratitude; ill return for good (*Sidney*). 2. Unacceptable; unpleasing quality.

UNGRA'VELY. *ad.* Without seriousness (*Shakspeare*).

UNGROU'NDED. *a.* Having no foundation.

UNGRU'DGINGLY. *ad.* Without ill-will; willingly; heartily; cheerfully (*Donne*).

UNGUA'RDED. *a.* 1. Undefended (*Dryden*). 2. Careless; negligent (*Prior*).

UNGU'ENT. *s.* (*unguentum*, Latin.) Ointment (*Pope*).

UNGUENTUM. (from *ungo*, to anoint.) In pharmacy, an ointment; a combination of fixed oil or animal fat, thinner than that of cerates, and thicker than that of liniments, having the consistency of butter, or nearly so. The chief medicines under this form are the following.

U. ADIPIS SILLÆ. The most simple ointment in use, to which a variety of substances may be added; it is mostly employed to chapped hands, &c.

U. ÆRUGINIS. A stimulating and corrosive compound, employed to deterge foul ulcers.

U. CALCIS HYDRARGYRI ALBÆ. A useful ointment to destroy vermin in the head, and to assist in the removal of scald head, venereal ulcers of children, and cutaneous eruptions.

U. LYTTÆ. Where a constant discharge from a blister is wanted, this ointment is mostly applied daily.

U. CERÆ. Excoriated surfaces, irritable and inflamed sores are mostly covered with this, which is also applied where simply an emollient is wanted.

U. CERUSSÆ. A sedative ointment, mostly applied to the intertrigo of youths.

U. CERUSSÆ ACETATÆ. A cooling and dissicative ointment when fresh, but a violently stimulating one when rancid.

U. ELEMI COMPOSITUM. Indolent ulcers, chilblains, chronic ulcers after burns, and indolent tumours are often removed by this ointment.

U. HYDRARGYRI FORTIUS. In very general use for mercurial frictions. It may be employed in almost all cases where mercury is indicated.

U. HYDRARGYRI MITIUS. Weaker than the former.

U. HYDRARGYRI NITRATIS. A stimulating and detergent ointment. Tinea capitis, prophthalmia, indolent tumours on the margin of the eye-lid, and ulcers in the urethra, are cured by its application.

U. HYDRARGYRI NITRICO OXYDUM. Weaker only than the former.

U. PICIS. The smell of this ointment prevents its more general use; in cutaneous eruptions and ulcerations about the hair it is very useful.

U. RESINÆ FLAVÆ. Yellow basilicon is in general use as a stimulant and detersive; it is an elegant and useful form of applying the resin.

U. SAMBUCI. A cooling and emollient preparation.

U. SIMPLEX. An emollient.

U. SPERMATIS CETI. A simple emollient.

U. SULPHURIS. The most effectual preparation to destroy the itch. It is also serviceable in the cure of other cutaneous eruptions.

U. TUTIÆ. Mildly adstringent.

U. ZINCI. A very useful application to chronic ophthalmia and relaxed ulcers.

In the last edition of the pharmacopœia of the London college a few of these are omitted: U. veratri is restored, and U. sperm. ceti is elegantly denominated U. cetacei.

UNGUICULAR MEASURE. (*unguis.*) A measure of six lines, or half a French inch.

UNGUICULATEM PETAL, in botany. A petal with a claw.

UNGUIS, (from ονυξ, a hook.) The nail. The nails are horny laminæ situated at the extremities of the fingers and toes.

UNGUIS, (from its resemblance to the lunated portion of the nail of the finger.) Onyx. An abscess or collection of pus between the lamellæ of the cornea transparens of the eye.

UNGUIS OS. The lachrymal bone is so named from its resemblance to a nail of the finger. See LACHRYMAL BONE.

UNGULÆ. See HOOF.

UNGULA CABALLINA. See TUSSILAGO.

UNGULATE SILICLE, in botany. A hoof-shaped silicle: as in rose of Jericho.

UNHA'LLOW. *v. a.* To deprive of holiness; to profane; to desecrate (*South*).

UNHA'LLOWED. *a.* Unholy; profane (*Pope*).

To UNHA'ND. *v. a.* To loose from the hand (*Denham*).

UNHA'NDLED. *a.* Not handled; not touched (*Shakspeare*).

UNHA'NDSOME. *a.* 1. Ungraceful; not beautiful (*Sidney*). 2. Illiberal; disingenuous.

UNHA'NDSOMELY. *ad.* 1. Inelegantly; ungracefully (*Spenser*). 2. Disingenuously; illiberally (*Dryden*).

UNHA'NDSOMENESS. *s.* 1. Want of beauty (*Sidney*). 2. Want of elegance (*Taylor*). 3. Illiberalness; disingenuity.

UNHA'NDY. *a.* Awkward; not dexterous.

To UNHA'NG. *v. a.* To divest of hangings.

UNHA'NGED. *a.* Not put to death by the gallows (*Shakspeare*).

UNHA'P. *s.* Misluck; ill fortune.

UNHA'PPILY. *ad.* Miserably; unfortunately; wretchedly; calamitously (*Tillotson*).

UNHA'PPINESS. *s.* 1. Misery; infelicity (*Tillotson*). 2. Misfortune; ill luck (*Burnet*). 3. Mischievous prank (*Shakspeare*).

UNHA'PPY. *a.* Wretched; miserable; unfortunate; calamitous; distressed (*Milton*).

To UNHA'RBOUR. *v. a.* To drive from shelter.

UNHA'RMED. *a.* Unhurt; not injured (*Locke*).

UNHA'RMFUL. *a.* Innoxious; innocent (*Dryden*).

UNHARMO'NIOUS. *a.* 1. Not symmetrical; disproportionate (*Milton*). 2. Unmusical; ill sounding (*Swift*).

To UNHA'RNESS. *v. a.* 1. To loose from the traces (*Dryden*). 2. To disarm; to divest of armour.

UNHA'TCHED. *a.* 1. Not disclosed from the eggs. 2. Not brought to light (*Shaks*).

UNHA'ZARDED. *a.* Not adventured; not put in danger (*Milton*).

UNHEA'LTHFUL. *a.* Morbid; unwholesome (*Graunt*).

UNHEA'LTHY. *a.* Sickly; wanting health (*Locke*).

UNHE'ARD. *a.* 1. Not perceived by the ear (*Milton*). 2. Not vouchsafed an audience (*Dryden*). 3. Unknown in celebration (*Milton*). 4. UNHEARD *of.* Obscure; not known by fame (*Granville*). UNHEARD *of.* Unprecedented (*Swift*).

To UNHEA'RT. *v. a.* To discourage; to depress (*Shakspeare*).

UNHE'ATED. *a.* Not made hot (*Boyle*).

UNHEE'DED. *a.* Disregarded; not thought worthy of notice; escaping notice (*Boyle*).

UNHEE'DING. *a.* Negligent; careless.

UNHEE'DY. *a.* Precipitate; sudden (*Sp.*).

To UNHE'LE. *v. a.* To uncover; to expose to view (*Spenser*).

UNHE'LPED. *a.* Unassisted; having no auxiliary; unsupported (*Dryden*).

UNHE'LPFUL. *a.* Giving no assistance (*Shakspeare*).

UNHE'WN. *part. a.* Rough; not hewn (*Dryden*).

UNHI'DEBOUND. *a.* Lax of maw; capacious (*Milton*).

To UNHI'NGE. *v. a.* 1. To throw from the hinges. 2. To displace by violence (*Blackmore*). 3. To disorder; to confuse (*Waller*).

UNHO'LINESS. *s.* Impiety; profaneness; wickedness (*Raleigh*).

UNHO'LY. *a.* 1. Profane; not hallowed (*Hooker*). 2. Impious; wicked (*Pope*).

UNHO'NOURED. *a.* 1. Not regarded with veneration; not celebrated (*Dryden*). 2. Not treated with respect (*Pope*).

To U'NHOOP. *v. a.* To divest of hoops (*Addison*).

UNHO'PED. Unhoped *for. a.* Not expected; greater than hope has promised.

UNHO'PEFUL. *a.* Such as leaves no room to hope (*Shakspeare*).

To UNHO'RSE. *v. a.* To beat from a horse; to throw from the saddle (*Knowles*).

UNHO'SPITABLE. *a.* (*inhospitalis*, Lat.) Affording no kindness or entertainment to strangers; cruel; barbarous (*Dryden*).

UNHO'STILE. *a.* Not belonging to an enemy.

To UNHOU'SE. *v. a.* To drive from the habitation (*Donne*).

UNHOU'SED. *a.* 1. Homeless; wanting a house (*Shakspeare*). 2. Having no settled habitation (*Southern*).

UNHOU'SELLED. *a.* Having not the sacrament (*Shakspeare*).

UNHU'MBLED. *a.* Not humbled; not touched with shame or confusion (*Milton*).

UNHU'RT. *a.* Free from harm (*Bacon*).

UNHU'RTFUL. *a.* Innoxious; harmless; doing no harm (*Blackmore*).

UNICAPSULAR PERICARP, in botany. Having one capsule to each flower.

Unicorn (μονοκερος, Greek.) An animal so denominated from its possessing but one horn. Among the Greeks and Romans it was usually described in some such manner as represented by our own heralds, and constituting one of the supporters of the royal arms; a kind of horse or ass with a single horn issuing from the forehead. Under this figure it is altogether an imaginary quadruped. Ctesius is perhaps the first of the Greek writers who thus delineates it; but its existence was doubted by Aristotle, and the description of Ctesius treated as fabulous.

The real unicorn is the rhinoceros, and it is the rhinoceros which is intended by this name in the books of the Old Testament: in which the Hebrew term is reem (רים.) sometimes, indeed, but improperly rendered by the translators bubalus, bison, or wild ox. There can be no doubt that rhinoceros is the proper translation of reem (רים), for it is under this name that this animal is known in Arabia to the present day: and the book of Job, in which the term chiefly occurs, is now admitted on all hands to be largely interspersed with Arabic terms, and is usually supposed to have been written by Moses in Arabia. (See Good's Translation of the Book of Job; Introductory Dissertation and note to ch. xxxix. 9.) The reem is also called in Arabia *huaddee*, which is literally unicorn, or the beast with one horn. In the same country *aouda* signifies a mare; and hence perhaps by an easy corruption of names the aouda has been mistaken for huaddee; and the figure of a horse with a horn has been erroneously adopted as the figure of the reem.

Unicorn, in astronomy. See Monoceros.

Unicorn fish, or Sea unicorn. See Monodon and Narwhal.

UNI'FORM. *s.* The regimental dress worn by an officer.

U'niform. *a.* (*unus* and *forma*, Latin.) 1. Keeping its tenour; similar to itself. 2. Conforming to one rule (*Hooker*).

UNIFO'RMITY. *s.* (*uniformite*, French.) 1. Resemblance to itself; even tenour (*Dryd.*). 2. Conformity to one pattern; resemblance of one to another (*Hooker*).

Uniformity, is particularly used for one and the same form of public prayers, and administration of sacraments, and other rites, &c. of the church of England, prescribed by the famous stat. 1 Eliz. and 13 and 14 Car. II. cap. 4. called the Act of Uniformity. (See Liturgy.) The objects of this act were to ensure uniformity of worship, and uniformity of sentiment among the members of the church: the former of these objects it effects; in the latter it fails so entirely that there is great reason to apprehend that not above one-tenth of the English clergy are cordial believers in the doctrinal articles, or preach decidedly and clearly the doctrines of the church whose articles they have subscribed.

U'NIFORMLY. *ad.* (from *uniform.*) 1. Without variation; in an even tenour. 2. Without diversity of one from another.

UNILABIATE COROL. A one-lipped corol, or a corol of one lip.

UNILATERAL RACEME. A one-sided raceme. When the flowers grow only on one side of the common peduncle.

UNILOCULAR PERICARP. A unilocular or one-celled pericarp, or of one cell.

UNIMA'GINABLE. *a.* Not to be imagined by the fancy; not to be conceived (*Milton*).

UNIMA'GINABLY. *ad.* To a degree not to be imagined (*Boyle*).

UNI'MITABLE. *a.* (*inimitable*, French.) *inimitabilis*, Latin.) Not to be imitated (*Burnet*).

UNIMPA'IRABLE. *a.* Not liable to waste or diminution (*Hakewill*).

UNIMPA′IRED. *a.* Not diminished; not worn out (*Addison*).

UNIMPO′RTANT. *a.* 1. Not momentous. 2. Assuming no airs of dignity (*Pope*).

UNIMPORTU′NED. *a.* Not solicited; not teased to compliance (*Donne*).

UNIMPRO′VABLE. *a.* Incapable of melioration.

UNIMPRO′VABLENESS. *s.* Quality of not being improvable (*Hammond*).

UNIMPRO′VED. *a.* 1. Not made better. 2. Not made more knowing (*Pope*). 3. Not taught; not meliorated by instruction (*Glanville*).

UNINCREA′SEABLE. *a.* Admitting no increase (*Boyle*).

UNINDI′FFERENT. *a.* Partial; leaning to a side (*Hooker*).

UNINFLA′MMABLE. *a.* Not capable of being set on fire (*Boyle*).

UNINFO′RMED. *a.* 1. Untaught; uninstructed (*Pope*). 2. Unanimated; not enlivened.

UNINGE′NUOUS. *a.* Illiberal; disingenuous (*Decay of Piety*).

UNINHA′BITABLE. *a.* Unfit to be inhabited (*Raleigh*).

UNINHA′BITABLENESS. *s.* Incapacity of being inhabited (*Boyle*).

UNINHA′BITED. *a.* Having no dwellers.

UNI′NJURED. *a.* Unhurt; suffering no harm.

UNINSCRI′BED. *a.* Having no inscription.

UNINSPI′RED. *a.* Not having received any supernatural instruction or illumination (*Locke*).

UNINSTRU′CTED. *a.* Not taught; not helped by instruction (*Locke*).

UNINSTRU′CTIVE. *a.* Not conferring any improvement (*Addison*).

UNINTE′LLIGENT. *a.* Not knowing; not skilful (*Blackmore*).

UNINTELLIGIBI′LITY. *s.* Quality of not being intelligible (*Burnet*).

UNINTE′LLIGIBLE. *a.* Not such as can be understood (*Rogers*).

UNINTE′LLIGIBLY. *ad.* In a manner not to be understood (*Locke*).

UNINTE′NTIONAL. *a.* Not designed; happening without design (*Boyle*).

UNI′NTERESSED. UNI′NTERESTED. *a.* Not having interest (*Dryden*).

UNINTERMI′TTED. *a.* Continued; not interrupted (*Hale*).

UNINTERRU′PTED. *a.* Not broken; not interrupted (*Roscommon*).

UNINTERRU′PTEDLY. *ad.* Without interruption (*Locke*).

UNINVE′STIGABLE. *a.* Not to be searched out (*Ray*).

UNINVI′TED. *a.* Not asked (*Philips*).

UNJOI′NTED. *a.* 1. Disjoined; separated (*Milton*). 2. Having no articulation (*Grew*).

UNIOLA, in botany, a genus of the class triandria, order digynia. Calyx many-valved; spikelets ovate, carinate. Three species, grasses of the East or West Indies.

UNION. *s.* (*unio*, Lat.) 1. The act of joining two or more, so as to make them one (*Milton*). 2. Concord; conjunction of mind or interests (*Taylor*). 3. A pearl: not in use (*Shakspeare*). 4. (In law.) *Union* is a combining or consolidation of two churches in one, which is done by the consent of the bishop, the patron, and incumbent (*Cowell*).

UNION, or THE UNION, by way of eminence, has been more particularly used to express the act by which the two separate kingdoms of England and Scotland were incorporated into one, under the title of The kingdom of Great Britain. This union, in vain attempted by king James I. was at length effected in the year 1707, 6 Annæ, when 25 articles were agreed to by the parliament of both nations; the purport of the most considerable being as follows: 1. That on the first of May 1707, and for ever after, the kingdoms of England and Scotland shall be united into one kingdom, by the name of Great Britain. 2. The succession to the monarchy of Great Britain shall be the same as was before settled with regard to that of England. 3. The united kingdom shall be represented by one parliament. 4. There shall be a communication of all rights and privileges between the subjects of both kingdoms, except where it is otherwise agreed. 9. When England raises 2,000,000*l.* by a land-tax, Scotland shall raise 48,000*l.* 16, 17. The standards of the coin, of weights, and of measures, shall be reduced to those of England throughout the united kingdoms. 18. The laws relating to trade, customs, and the excise, shall be the same in Scotland as in England. But all the other laws of Scotland shall remain in force; but alterable by the parliament of Great Britain. Yet with this caution, that laws relating to public policy are alterable at the discretion of the parliament; laws relating to private right are not to be altered but for the evident utility of the people of Scotland. 22. Sixteen peers are to be chosen to represent the peerage of Scotland in parliament, and 45 members to sit in the house of commons. 23. The 16 peers of Scotland shall have all privileges of parliament; and all peers of Scotland shall be peers of Great Britain, and rank next after those of the same degree at the time of the union, and shall have all privileges of peers, except sitting in the house of lords, and voting on the trial of a peer.

These are the principal of the 25 articles of union, which are ratified and confirmed by statute 5 Ann. c. 8. in which statute there are also two acts of parliament recited; the one of Scotland, whereby the church of Scotland, and also the four universities of that kingdom, are established for ever, and all succeeding sovereigns are to take an oath inviolably to maintain the same; the other of England, 5 Annæ, c. 6. whereby the acts of uniformity of 13 Eliz. and 13 Car. II. (except as the same had been altered by parliament at that time), and all other acts then in force for the preservation of the church of England, are declared perpetual; and it is stipulated, that every subsequent king and queen shall take an oath inviolably to maintain the same within England, Ireland, Wales, and the town of Berwick upon Tweed. And it is enacted, that these two acts "shall for ever be observed as fundamental and essential conditions of the union."

This term ceases to be applied exclusively to the political connection between England and Scotland; Ireland having in 1800 become similarly united. In plate 173 we have given a sketch of the ensigns armorial of the united kingdom of Great Britain and Ireland, as settled by the king in council. These are quarterly, first and fourth, England; second, Scotland; third, Ireland: on an escutcheon of pretence, the arms of his majesty's German dominions, ensigned with the electoral bonnet.

The union badges—the rose, thistle, and shamrock—issuant from the same stalk; namely, the rose between the thistle and shamrock, and alternated by the rose between the shamrock and thistle; both ensigned with the imperial crown. See the plate.

The union flag combines the saltiers of St. Andrew and St. Patrick, surmounted by the cross of St. George, as represented also in the plate.

The crest of Ireland is a tower, triple-towered proper; in the portal a hart, lodged, argent, attired, and hoofed, or.

The badge of Ireland is a shamrock ensigned with the imperial crown.

The badge of the shamrock to be within the collar of St. Patrick, ensigned with the imperial crown.

The style of his majesty is as follows:—"*Georgius Tertius Dei Gratia Britanniarum Rex, Fidei Defensor, et in Terrâ Ecclesiæ Anglicanæ et Hibernicæ supremum Caput.*" In English, "George the Third, by the Grace of God, of the united Kingdom of Great Britain and Ireland, King, Defender of the Faith, and of the united Church of England and Ireland on Earth, supreme Head.

The supporters, crest, and crown, remain without any alteration.

Union, the county town of Fayette, in Pensylvania, 14 miles from the Monongohela, and 58 S. of Pittsburg. Lon. 79. 48 W. Lat. 39. 54. N.

UNIONES. (from *unus*, one; so called because there is never more than one found in the same shell, or according to others, for that many being found in one shell not any one of them is like the other). See Margarita.

UNI'PAROUS. *a.* (*unus* and *pario*, Latin.) Bringing one at a birth (*Brown*).

U'NISON. *a.* (*unus* and *sonus*, Latin.) Sounding alone (*Milton*).

Unison. That consonance, or coincidence of sounds, proceeding from an equality in the number of vibrations made in a given time by two sonorous bodies: or the union of two sounds so directly similar to each other in respect of gravity, or acuteness, that the ear perceiving no difference, receives them as one and thesame.

The ancients were much divided in opinion respecting the question whether the unison be a consonance. Aristotle speaks in the negative; Muris Mersennus, and others, declare in the affirmative. The decision of the question, however, depends on the definition we give to the word consonance. If by a consonance we only understand two or more sounds agreeable to the ear, the unison is a consonance; but if we include in the consonance sounds of a different pitch, i. e. sounds less or more acute with respect to each other, the unison, by its own definition, is not a consonance.

UNISONI. (Ital. Plu.) A word implying that the parts in a score over which it is written are in unison with each other: as *violini unissoni*, the violins in unison. *Flauti unissoni*, the flutes in unison.

Unit, Unite, or Unity, in arithmetic, the number one, or one single individual part of discrete quantity. (See Number.) The place of units, is the first place on the right hand in integer numbers.

According to Euclid, unity is not a number, for he defines number to be a multitude of units.

UNITARIANS, in church history, a name assumed by those who believe not only that there is but one God, the supreme object of religious worship; but that this God is the Father only, and not a Trinity consisting of Father, Son, and Holy Ghost.

Those who assume this name in the present day are, as we are told by one of their own number, under the word Unitarians in Nicholson's Cyclopedia, "principally divided into arians and humanitarians, or believers in the simple humanity of Christ. For an account of the first of these two classes, see the article Arians. The summary of doctrines held by modern Unitarians is as follows: The capital article in the religious system of this denomination is, that Christ was a mere man. But they consider him as the great instrument in the hands of God of reversing all the effects of the fall; as the object of all the prophecies from Moses to his own time; as the great bond of union to virtuous and good men, who, as christians, make one body in a peculiar sense; as having communications with God, and speaking and acting from God in such a manner as no other man ever did, and therefore, having the form of God, and being the Son of God in a manner peculiar to himself; as the mean of spreading divine and saving knowledge to all the world of mankind; as, under God, the head of all things to his church; and as the Lord of life, having power and authority from God to raise the dead, and judge the world at the last day. They suppose that the great object of the whole scheme of revelation was to teach men how to live here so as to be happy hereafter; and that the particular doctrines they taught, as having a connection with this great object, are those of the unity of God, his universal presence and inspection, his placability to repenting sinners, and the certainty of a life of retribution after death. They suppose, that to be a christian implies nothing more than the belief that Christ and his apostles, as well as all preceding prophets, were commissioned by God to teach what they declare they received from him; the most important article of which is the doctrine of a resurrection to immortal life."

Such is the statement given by an Unitarian of the requisites to the christian character. We have no wish to draw uncandid inferences; yet we cannot help remarking that, if the last sentence be a correct representation of the Unitarian notions, and much of the language of Mr. Belsham and Mr. Aspland might be brought in confirmation of it, they are, in theory, decided Antinomians.

See the articles Arian, Christ, Jesus, Socinian, Trinity, &c.

To UNI′TE. *v. a.* (*unitas*, Latin.) 1. To join two or more into one (*Spenser*). 2. To make to agree (*Clarendon*). 3. To make to adhere (*Wiseman*). 4. To join (*Dryden*). 5. To join in interest (*Genesis*).

To Uni′te. *v. n.* 1. To join in an act; to concur; to act in concert (*Shakspeare*). 2. To coalesce; to be cemented; to be consolidated. 3. To grow into one.

Unite, in the manage. A horse is said to unite, or walk in union, when, in galloping, the hind quarters follow and keep time with the fore.

UNITED BRETHREN. See Moravians.

United Provinces of the Netherlands, a name given to the seven protestant states of the Netherlands, which threw off the yoke of Spain, and became an independent republic. See Holland, and Netherlands.

United States of America, a republic of N. America, consisting originally, in 1783, of thirteen states, namely, Massachusets, New Hampshire, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, and Georgia. Only eleven of these states acceded, at first, to the new federal constitution, but they were afterward joined by North Carolina and Rhode Island; and Kentucky, Vermont, and Tennassee, having since been added to them, the present number of the states that form this great American republic is sixteen. These states long flourished as provinces of Great Britain; but parliament attempting to tax them by its sole authority, without the intervention of their assemblies, a civil war ensued; a congress was formed, which, in 1776, disclaimed all dependence on the mother country: the French king entered into an alliance with them in 1778; the colonies, powerfully assisted by France, were successful; and Great Britain acknowledged their independence by the peace of 1783. The federal constitution of the United States is now governed by a congress, consisting of a president, vicepresident, senate, and house of representatives. The representatives are elected every second year; the senators are chosen for six years, and the president and vicepresident for four. General Washington was elected the first president, re-elected in 1792, and, on his retiring from public affairs, in 1796, Mr. Adams was elected his successor. The illustrious Washington died Dec. 14, 1799. To the sixteen states before mentioned must be added all the country to the N. of the Ohio, extending from Pennsylvania on the E. the lakes on the N. and the Mississippi on the W. called the Western Territory. The United States extend 1250 miles in length from E. Florida to the N.W. angle of Nova Scotia; being situate between 31 and 46° N. lat. See America.

UNI′TEDLY. *ad.* With union; so as to join (*Dryden*).

UNI′TER. *s.* The person or thing that unites (*Glanville*).

UNI′TION. *s.* (*union*, Fr.) The act or power of uniting; conjunction; coalition (*Wiseman*).

U′NITIVE. *a.* (from *unite*.) Having the power of uniting (*Norris*).

U′NITY. *s.* (*unitas*, Lat.) 1. The state of being one (*Hammond*). 2. Concord; conjunction (*Sprat*). 3. Agreement; uniformity (*Hooker*).

Unities, in the drama. See Dramatic. See also an ingenious paper by Mr. Hope, in the Athenæum, vol. iii. p. 409.

UNIVALVE SHELLS, in natural history, a term used to express one of the three general classes of shell-fishes; the other two being the bivalves and multivalves. See Conchology, and Shells.

UNJU′DGED. *a.* Not judicially determined (*Prior*).

UNIVE′RSAL. *a.* (*universalis*, Latin.) 1. General; extending to all (*South*). 2. Total; whole (*Dryden*). 3. Not particular; comprising all particulars (*Arbuthnot*).

Unive′rsal. *s.* The whole; the general system of the universe: not in use (*Raleigh*).

UNIVERSALISTS, in church history, were originally those reformers who taught a kind of middle doctrine, between the systems of Calvin and Arminius. They were denominated hypothetical Universalists, because they maintained, that God is willing to show mercy to all mankind; and because they held, that faith in Christ is a necessary condition to render them the objects of the divine mercy. These opinions were intended to be opposed to the notions of Calvin, concerning election and reprobation, on the one hand; and to the opinions of Pelagius, concerning the merit of good works, on the other. The doctrines of the hypothetical Universalists were propagated with success by John Cameron; and were further illustrated and defended by Moses Amyrant, a man of great learning and sagacity. The opinions he maintained, and which produced no small changes in the doctrine of the reformed in France, are briefly summed up in the following propositions:

That God desires the happiness of all men; and that no mortal is excluded by any divine decree from the benefits that are procured by the death, sufferings, and gospel of Christ:

That, however, none can be made a partaker of the blessings of the gospel, and of eternal salvation, unless he believe in Jesus Christ:

That such, indeed, is the immense and universal goodness of the Supreme Being, that he refuses to none the power of believing; though he does not grant unto all his assistance and succour, that they may wisely improve this power to the attainment of everlasting salvation:

And that, in consequence of this, multitudes perish through their own fault, and not from any want of goodness in God.

But the doctrine of the present Universalists is widely different from this. Their opinion is, that no human creature, whatever his conduct may have been, will be eternally miserable; but that all men universally, after having been subjected to degrees of punishment proportioned in duration to their respective crimes, will be purified and perfected thereby, and then admitted to the presence of God, there to enjoy unending felicity. This doctrine is not hinted at by any of the Ante-nicene fathers, except Origen, and by him very obscurely. Among the moderns it has been embraced and defended by Dr. Thomas Burnett, Dr. Hartley, Mr. Winchester, Mr. Vidler, and a few others. It is now held by almost all the Socinians. We shall simply remark of this doctrine, that it has no foundation in Scripture; as is indeed admitted by Dr. Hartley; and that it is a dangerous doctrine, which is expressly allowed by one of its abettors, Dr. Thomas Burnett. For tolerably decisive refutations of the notion, we beg to refer to the 21st of Dr. Gregory's Letters on the Evidences, Doctrines, and Duties of the Christian Religion; and to an anonymous pamphlet very recently published by Rivington's, entitled, The Errors of Universalism; or, the Doctrine of the Non-eternity of future Punishments contrary to Scripture and dangerous to Society.

UNIVERSA'LITY. *s.* (*universalitas*, school Lat.) Not particularity; generality; extension to the whole (*South. Woodward*).

UNIVE'RSALLY. *ad.* Throughout the whole; without exception (*Hooker*).

U'NIVERSE. *s.* (*univers*, Fr. *universum*, Lat.) The general system of things; the assemblage of heavenly and earthly bodies with all things in and upon them.

UNIVERSITY, is the name of a corporation formed for the education of youth in the liberal arts and sciences, and authorized to admit such as have studied in it to certain degrees in different faculties, which not only serve as certificates of proficiency in science, but also confer on those who obtain them considerable privileges within the university, as well as some rank in the state without it. Universities generally comprehend within them one or more colleges; but this is not always the case; for the university of St. Andrew's was in being before either of its colleges was founded, and it would continue in being with all its privileges, though both its colleges were levelled with the dust.

In every university with which we are acquainted there are four faculties, viz. theology, law, physic, and the arts and sciences, comprehending mathematics, natural and moral philosophy, &c.; and in Oxford, Cambridge, and some other universities, music is considered as a fifth faculty. In each of these there are two degrees, those of bachelor and doctor; for though in the universities of Great Britain and Ireland we have no such degree as doctor in arts and sciences, our master of arts answers to the degree of doctor in philosophy, which is conferred by many of the universities on the continent.

Universities in their present form, and with their present privileges, are institutions comparatively modern. They sprang from the convents of regular clergy, or from the chapters of cathedrals in the church of Rome, where young men were educated for holy orders, in that dark period when the clergy possessed all the little erudition which was left in Europe. These convents were seminaries of learning probably from their first institution; and we know with certainty, that in Old Aberdeen there was a monastery in which youth were instructed in theology, the canon-law, and the school philosophy, at least 200 years before the University and King's college were founded. The same was doubtless the case in Oxford and Cambridge, and probably in every town in Europe where there is now a university, which has any claim to be called ancient; for it was not till the more eminent of the laity began to see the importance of literature and science, that universities distinct from convents were founded, with the privilege of admitting to degrees, which conferred some rank in civil society. These universities have long been considered as lay corporations; but as a proof that they had the ecclesiastical origin which we have assigned to them, it will be sufficient to observe, that the pope arrogated to himself the right of vesting them with all their privileges; and that, prior to the Reformation, every university in Europe conferred its degrees in all the faculties by authority derived from a papal bull.

It is perhaps no improbable conjecture, that the church of Rome derived her idea of academical honours from the Jews, among whom literary distinctions extremely similar subsisted before the nativity of our Saviour. Among them, the young student, with respect to his learning, was called a disciple; from his minority a junior; and the chosen or elected, on account of his election into the number of disciples. When he had made some progress in knowledge, and was deemed worthy of a degree, he was by imposition of hands made חבר, a companion to a rabbi, the person who officiates using this form, "I associate thee;" or, "Be thou associated;" and as soon afterwards as he was thought worthy to teach others, the associate was raised to the rank of rabbi. Whether this process suggested the idea or not, it has certainly some resemblance to that by which a young man in our universities passes through the degree of bachelor to that of master of arts or doctor.

The most ancient universities in Europe are those of Oxford, Cambridge, Paris, Salamanca, and Bologna; and in the two English universities, the first-founded colleges are those of University, Baliol, and Merton, in the former, and St. Peter's in the latter. Oxford and Cambridge, however, were universities, or, as they were then called, studies, some hundreds of years before colleges or schools were built in them; for the former flourished as a seminary of learning in the reign of Alfred the Great, and the other, could we believe its partial partizans, at a period still earlier. The universities of Scotland are four, St. Andrew's, Glasgow, Aberdeen, and Edinburgh. In Ireland there is but one university, viz. that of Dublin, founded by queen Elizabeth, and very richly endowed.

We shall now proceed to explain the various component parts of an university, and to accomplish this correctly and minutely, we have had recourse to the Cambridge University Calendar, compiled by Mr. Raworth, who says, "The university of Cambridge is a society of students in all and every of the liberal arts and sciences, incorporated (13 Elizabeth) by the name of the chancellor, masters, and scholars. The frame of this little commonwealth standeth upon the union of sixteen colleges, or societies, devoted to the study of learning and knowledge, and for the better service of the church and state." Every college is in itself a corporate body, and governed by its own statutes, which must, however, concur with the general laws of the university, formed by Elizabeth on previous privileges, and confirmed by parliament, consequently they are the basis of all modern regulations. Each of the colleges send deputies, both for the executive and legislative branches of the government, and the place of their meeting is termed the senate-house.

Masters of arts, doctors in divinity, civil law, and physic, who have their names inscribed on the college boards, and are resident at Cambridge, possess votes in the above assembly; and of those there were, in the year 1802, about 940. The senate consists of two classes, which are called regents or non-regents, with a view to some particular offices assigned by the statutes of the university to the junior division. Masters of arts of less than five years standing, and doctors under two, form the regent, or upper-house; and it has besides the term of white-hood house, from the circumstance of the members having their hoods lined with silk of the above colour: the remainder constitute the non-regent, or black-hood house: doctors of more than two years standing, and the public orator of the university, are entitled to vote in either of those houses at pleasure; exclusive of which there is a caput, or council, composed of the vice-chancellor, a doctor of each faculty, and two masters of arts, who are representatives of the houses already mentioned. The vice-chancellor being a member of the caput by virtue of his office, his election to the former only takes place annually, on the fourth of November, when the senate choose him from the masters of the sixteen colleges; but that of the caput occurs after the same interval, on the 12th of October, in the following manner: the vice-chancellor and the two proctors severally nominate five persons, and from the fifteen thus proposed the heads of colleges and doctors select five, generally preferring the vice-chancellor's list.

The officer just mentioned calls the meetings of the senate by a printed notice, which specifies the cause, and must be suspended in the halls of the several colleges three days previously to the time appointed. A congregation of the members thus summoned may proceed to business, and a congregation consists of any number above twenty-six, including the proper officers of the senate, who are compelled to attend on oath personally, or by their legal deputies. Exclusive of these casual meetings, there are statutable congregations, for conferring degrees, electing officers, &c. &c. which are held without notice. "Every member has a right," says Mr. Raworth, "to present any proposition, or grace, to the consideration of the senate; but previously to its being voted by the two houses, it is to be read and approved by the council, or caput, each member of which has a negative voice. This custom has seldom been observed, unless something manifestly absurd, or obviously derogatory to the credit of the university, is proposed; insomuch, that nothing has been more common than for a person to give a placet in the caput, and a non-placet to the same in the body, upon the idea that the caput should be considered in the light of a committee to prepare the graces in point of form for the subsequent voting; as without some such regulation it might be difficult to take the sense of the senate upon the real merits of the question." When a grace has passed the caput, one of two scrutators read it in the non-regent house, and in the other it is read by the senior proctor, after which the vice-chancellor dissolves the congregation; the ceremony of reading is repeated in a second congregation, and if a non-placet does not occur, it becomes a statute; on the contrary, if a non-placet is put in by a member of either house, it is put to the vote there, and a majority decides the question.

The senatus consultum decree, or grace, of this learned assembly has the same force and effect as an act of the legislature of Great Britain, which fact is supported by the opinion of the best counsel, and "in cases where nothing is enacted in opposition to the laws of the land, neither the statutes of Elizabeth, nor the mandatory letters of succeeding kings, although their authority be apparently strengthened by uninterrupted submission, can stand against the determination of this respectable assembly."

A degree cannot be conferred without passing of a grace for the purpose, which is done with the same formality as if a new law was to be made. This is, however, dispensed with in the single case of a bachelor of arts, as this requires reading in one congregation only, when it is termed a supplicat, and must be signed by the prælector, who thus becomes responsible for the truth of its contents, besides the penalty of being deprived of his privilege of voting in the senate for two years, or bearing any office in the university, upon discovery of any false assertions in it. Degrees are never conferred, unless the persons receiving them previously sign a declaration, that they are *bona fide* members of the church of England, as by law established. All the officers of the university, forming the executive part of it, are chosen by the senate, the principal of whom is the chancellor, who presides in all cases, and to whom is confided the sole power of governing, except in cases of mayhem and felony; he is, besides, expected to protect and preserve all the rights and privileges of the institution, and to see that strict and impartial justice is administered in every case to the members; and that all this may be insured, the office has lately been entrusted to noblemen of the highest rank. Other parts of his official duty are, the convoking of assemblies, the sealing of diplomas, letters of degrees, provisions, &c. given by the university.

The high steward is the next officer in consequence to the chancellor, and to him is granted the power to superintend the trial of students accused of felony, within the limits of the jurisdiction, which is one mile in every direction from the suburbs of the university; he is also empowered to hold a leet, according to the established charter and custom, and is permitted to have a deputy.

The vice-chancellor's office is explained by his title; but he acts as a magistrate for the university and county, and must be the head of some college. The regents elect two proctors, who are officers of the peace, and superintend the behaviour and discipline of all the pupils, and may search for and commit to prison those abandoned females who contribute to corrupt the morals of the students at the university. Exclusive of these purposes, the proctors are appointed to attend the congregations of the senate, when they stand in scrutiny with the chancellor or vice-chancellor, to take the open suffrages, verbally and written, which they read, and finally pronounce the assent or dissent: the graces are read by them in the regent house, where they take the assents and dissents secretly, but afterwards openly declare them. Although there are some particular parts of the duties of these officers which may be considered very unpleasant, yet they must be masters of arts, and are regents by virtue of their office, and are enabled to determine the seniority of all masters of arts at the time of their taking that degree; besides which, they may nominate two moderators, who are then appointed by a grace of the senate. Those persons act as the substitutes of the proctors in the philosophical schools, and alternately superintend disputations and exercises there, and the examinations for the degree of bachelor of arts.

Other officers are termed taxors, scrutators, a public orator, a commissary, a registar, esquire bedells, and librarians. The taxors, similar to the moderators, are masters of arts and regents by virtue of their office, which is to regulate the markets, the assize of bread, the exactness of weights and measures, by the different standards, and to summon all offenders into the commissary's court: the scrutators are non-regents, and their functions are to attend at every congregation, to read the graces in the lower house, where they collect the votes secretly or openly, in scrutiny, when they publicly pronounce the assent or dissent of that house.

The public orator holds an office which is considered as one of the most honourable in the university; he is, in fact, the medium of the senate upon all solemn occasions, reading and recording all communications to and from the senate, and presenting all honorary degrees, accompanied by a suitable speech. The commissary holds his office under the chancellor, and officiates as assessor, or assistant, in the vice-chancellor's court; besides which, he holds a court of record, where all causes are subject to the statute and civil law and custom of the university, and the persons for whom it is held are all privileged, and scholars under the degree of master of arts. The registrar attends himself, or by deputy, all congregations, to give directions, if necessary, for the correct wording of such graces as are propounded, and to draw up any that the vice-chancellor may appoint; to receive them when passed through both houses, and to registrar them in the archives of the university; exclusive of which, his office requires him to record the seniority of those who proceed annually in the arts or faculties, agreeably to the schedules furnished to him by the proctors.

The esquire bedells attend the vice-chancellor during all public solemnities, preceding him with their insignia of silver maces: they attend, besides, the doctors when present in the regent house, by bringing them to open scrutiny, there to deliver their suffrages, either by word or writing, according to the order of the statute; and to receive from the vice-chancellor and the rest of the caput the graces, which they deliver to the scrutators in the lower house; when, if granted, they convey them to the proctors in the other. Previous to a meeting, they proceed to every college, with an open summons, either to the senate, or whatever else place may be appointed under the regulations of the university; and, finally, they attend the professors and respondents in each faculty from their several colleges to the schools, collect penalties and fines, and summon all members of the senate to the chancellor's court.

We have now mentioned the different officers of an university in England, with as much brevity as the nature of the subject will permit; at the same time we must observe, that none can be more important in a state, or can more deserve explanation. There are two courts of law in the university of Cambridge: the first of which is the consistory court of the chancellor, where that officer, or in his absence the vice-chancellor, assisted by some of the heads of colleges, and one or more doctors of the civil law, preside, and administer justice demanded by any member of the university, or afford it to those who conceive themselves injured by them in the cases cognizable by this particular court; there all pleas and actions personal, originating within the jurisdiction of the university, to which a privileged person is a party, and not relating to mayhem or felony, is decided according to the usual course of civil law, by citation, libel, &c. When the cause relates to the sale or purchase of victuals, the chancellor is directed by the charters and customs of the body he governs; and in case they are silent upon the subject, the statutes of England are his guide. The decisions of this court are not absolute, as an appeal may be made to the senate, which appoints three or five doctors, or masters of art, who are empowered to examine, confirm, or reverse the decree complained of.

The other court is the consistory court of the commissary. The commissary, a doctor of the civil law, acts under the authority and seal of the chancellor, and sits as well in the university, as at Midsummer and Stirbitch fairs, there to take knowledge, and to proceed in all causes "*ad instantiam et promotionem partis ut supra*," the parties, or one of them, being privileged: saving that within the university all causes or suits whereunto the proctors, or taxors, or any of them, or a master of arts, or any other of superior degree, is a party, are reserved solely and wholly to the jurisdiction of the chancellor or vice-chancellor. The manner of proceeding in this court is similar to that of the preceding, which has a registrar, procurators, and advocates, and a yeoman bedell, as is required in the consistory court. Appeals are also allowed, but in this case it must be made in the first instance to the higher court, and may from thence be removed to the senate, and the three or five delegates appointed by that body.

The university possesses the right of sending two members to the imperial parliament of the united kingdom, who are chosen by the collective body of the senate. A council, termed the university council, appointed for various purposes, is composed by a grace of the senate, and a solicitor is nominated by the vice-chancellor.

The syndics, chosen from the members of the senate, conduct all special affairs, such as framing laws, regulating fees, and inspecting the library, the printing, buildings, &c. &c. Those of the university press cannot proceed to business unless the vice-chancellor and four others are present in the parlour of the office. All the professors of the sciences are allowed stipends, which are derived from various sources, composed of the university chest, sums from government, or from estates appropriated for that purpose: the whole income of the university being about eleven thousand pounds per annum, including fees for degrees, profits of the printing-office, &c. Of this sum eight thousand pounds is expended annually to officers, professors in the library and schools, the press, in taxes, and charitable donations, the whole under the management of the vice-chancellor for the time being, whose accounts are audited by three persons appointed yearly by the senate.

The Book of Statutes was printed in the year 1785, copies of which are possessed by the vice-chancellor and the proctors, and one is deposited in the public and in the libraries of each college; it consists of the ancient statutes, those of Henry VIII., Edward VI., and those of the first and twelfth years of the reign of queen Elizabeth; "*Literæ Regiæ ad Academiam datæ; Interpretationes Statutorum; Senatus Consulta sive gratiæ decreta præfectorum; Juramenta et Formulæ.*" Mr. Raworth says, "the statutes of the twelfth of Elizabeth, and the Senatus Consulta, are those which are chiefly respected at this time. Many of the old statutes, decrees, interpretations, &c. are looked upon as obsolete, some as ridiculous, and others unnecessary in the present establishment; yet what Dr. Bentley observed of Trinity college statutes, during his disagreement with the fellows of that society, might be urged concerning these: 'Some are my club, and others my rusty sword, which I can draw upon occasion.'"

The terms are three in number: Michaelmas term commences on the tenth of October, and terminates the sixteenth day of December; Lent term begins January thirteen, and is concluded on the Friday immediately preceding Palm Sunday; Midsummer term begins one week after Easter day, and ends on the Friday following commencement day, which is invariably the first Tuesday in July. Upon the decease of a member of the senate during the term, and within the university, application is made to the vice-chancellor, and the bell of the university is tolled for one hour, term instantly ceases for three days, and for that period lectures and disputations cease.

Most of the statutes made for the government of the sixteen different colleges dictate that the members or fellows of them shall be exclusively Englishmen, and some even prescribe that they must be natives of particular counties and districts; hence an invidious distinction is created between the residents of the northern and southern parts of this island, which, though united for a long time past in political matters, are most completely separated in the pursuit of knowledge, and it is too much to be feared that this circumstance is the real cause of the affected contempt of the degrees and academic honours granted by seminaries of learning in Scotland and Ireland. It is singular that the individuals who founded the colleges at Cambridge and Oxford should have concurred in this narrow and illiberal conduct almost universally, as they each had a strong sense of religion, which, however, does not appear to have taught them the best principle of it, brotherly love. As a few of the colleges admit of general competition for fellowships, and the members of the two universities seem sensible of the injustice and impolicy of such distinctions, we may venture to hope some method will be devised ere long to obviate or remove them. The following regulation applies to all the colleges at Cambridge. "Whosoever hath one English parent, although he be born in another country, shall be esteemed as if born in that county to which his English parent belonged. But if both parents are English, he shall be reckoned of that county to which his father belonged."

The colleges are thus constituted: The head, by which odd term the master is designated, who is generally a doctor of divinity; but Caius college may be governed by a doctor of physic, and Trinity must have a doctor of laws; the principal of King's is styled provost, and of Queen's president. The fellows are generally bachelors of divinity, bachelors or masters of arts, and others are bachelors and doctors of law and physic, particularly at the two colleges of Trinity-hall and Caius. There is a distinction between the fellows, who are divided into classes, called regular and bye; the latter are considered as merely honorary, never succeeding to college preferment, nor having any concern whatever in the affairs of it, but are allowed an inconsiderable sum annually by their respective colleges, which act as trustees for them. They are denominated Perse Wortley, Yorkshire, Coventry, Platt, Dixie, and Tiverton. Clergymen who are termed conduits are employed in the several institutions as chaplains, and perform some of the duties belonging to that office.

There are noblemen graduates, doctors in the different faculties, and bachelors of divinity (who have been masters of arts), whose names are on the boards, and are all members of the senate; they reside in the university occasionally, but have no further claim upon a college than the general respect due to their rank in the honours of the former; their charges are inconsiderable for keeping their names on the boards, being about four pounds per annum.

Graduates, neither members of the senate, nor in *statu pupillari*, are bachelors of divinity, and denominated four-and-twenty men, or ten-year men. These are generally clergymen that procure the dignities of the university in addition to their wealth and preferment at an easy rate, without the formalities of an education within its jurisdiction. Oxford does not permit this method of partaking of academic titles, and indeed the possessors of them enjoy but little reputation derived from such at Cambridge. They are tolerated by the statute of Elizabeth, which allows persons who are admitted at any college, when twenty-four years of age, and upwards, after ten years (during the last two of which they must reside the greater part of three several terms) to become bachelors of divinity, without taking any prior degree.

Bachelors of law and physic sometimes put themselves to the unnecessary expense of keeping their names upon the boards till they obtain the distinction of doctors; bachelors of arts, on the contrary, who are in *statu pupillari*, and pay for tutorage, whether resident or non-resident, generally keep their names on the boards to evince their desire of becoming candidates for fellowships, or members of the senate; they may, however, erase their names, and save the expenses of tutorage and college *detrimenta*, and take the degree of A. M. after the usual time, by inscribing their names a few days before their incepting, and paying a quarter's tutorage; some of these are called bachelors commoners, as they are allowed to dine with the fellows, and when under graduates they were fellow commoners.

The fellow commoners are almost universally the younger sons of titled persons, or the sons of men of ancient families and property; the denomination of those most probably originated from the privilege they enjoy of dining with the fellows. There are some few exclusive rights attached to the rank of fellow commoners, but they chiefly apply to the usages of the hall and chapel, besides which their academic habits are ornamented with gold or silver. Pensioners and scholars pay for their rooms, commons, &c. Those who enjoy scholarships read the graces, lessons in the ritual, &c. Of the sizars it has been observed, they are generally men of inferior fortune, though frequently by their merit they succeed to the highest honours in the university. They usually have their commons free, and receive various emoluments, by which means they are enabled creditably to proceed through their course of education. Most of our church dignitaries have been of this order.

Such is the general outline of an English university, a constitution the work of ages, with numerous perfections, and with very few errors; our confined limits will not permit us to enlarge as we could wish upon the forms adopted in the arduous undertaking of teaching the sciences and a taste for polite literature united, but we may safely say they seem such as are best calculated for the final purpose and to excite emulation, and we are supported in this assertion by the fact that no other universities have excelled those of England and Great Britain, in the aggregate, in the production of excellent philosophers and respectable divines. Superficial knowledge is held in no kind of estimation at either of our great seminaries, the very essence and causes, as well as effects, must be explored to satisfy the expectations of the various professors, formed by long experience and unexhausted assiduity; a young man must therefore study vigorously, and without relaxation, for two years and one quarter, ere he ventures to appear in a public exercise before the university. The first year is occupied by lectures from Euclid, with the first six books of which he must be thoroughly acquainted, and the principles of algebra, plane trigonometry, and conic sections. Different colleges have their peculiar systems, but mechanics, hydrostatics, optics, fluxions, and a part of Newton's Principia, with the method of increments, differential method, and similar miscellanea, are the pursuits of the second year; to the third belongs astronomy, the Principia already mentioned, spherical trigonometry, the most difficult and important parts of fluxions, algebra, and geometry: his last term, or the first term of the fourth year, requires all the energies of his mind; he is now more deeply engaged in the arduous conflict of the schools with all his rivals, and preparing himself for the senate-house examination.

Having completed this course of natural philosophy, we shall next turn our attention to the mode adopted in the second head of academical studies, or the course of moral philosophy in the attainment of this branch. The first year is devoted to Locke and logic, and the two following to Paley, Hartley, Burlamagni, Rutherford, Clarke on the Attributes, and other authors whose writings are of a similar tendency, and those are made the subjects of various orders of lectures in the different colleges; lectures on the chronology, geography, laws, religious rites and customs of the nations which are mentioned in the Old and New Testaments, in some degree derived from Beausobre, but partly from other sources, are also given to promote an accurate knowledge of the foundation of our faith. Unfortunately, although these methods of promoting the studies of the pupils were wisely conceived, and are generally executed with great ability and advantage, there have been instances of neglect and very slight attendance.

The third head includes the belles lettres, or classics, and this of all the variety of pursuit seems the most successful in each of the colleges, as every term has an appropriate selection of the best for the lecture-room, when extracts from the most approved authors of antiquity, judiciously commented on, and compared with similar passages from modern writers, forms a source of entertainment highly grateful as well as useful. Besides the exertions of the tutor in this particular, the students deliver either written, or *viva voce*, compositions in their respective chapels weekly, which may be in the Latin or English languages. The author of the little but valuable work before mentioned, very properly observes, that emulation of an honourable kind is excited by prizes and rewards in most of the colleges, and this emulation is not of the dangerous nature too often perceptible in inferior seminaries, as the first man in each year feels his inferiority to those a few years older than himself, and the pre-eminence over his own year in his own college, may receive a most violent check in the collision with the rival heads of his own standing in fifteen other colleges.

The emperor Napoleon issued a decree in March, 1808, by which a new imperial university was constituted for the whole of his French dominions. This curious document may be seen in the Athenæum, vol. iii. p. 459.

UNI'VOCAL. *a.* (*univocus*, Lat.) 1. Having one meaning (*Watts*). 2. Certain; regular; pursuing always one tenour (*Brown*).

UNI'VOCALLY. *ad.* 1. In one term; in one sense (*Hall*). 2. In one tenour (*Ray*).

UNJO'YOUS. *a.* Not gay; not cheerful.

UNJU'ST. *a.* (*injuste*, Fr. *injustus*, Lat.) Iniquitous; contrary to equity; contrary to justice (*King Charles*).

UNJU'STIFIABLE. *a.* Not to be defended; not to be justified (*Addison*).

UNJU'STIFIABLENESS. *s.* The quality of not being justifiable (*Clarendon*).

UNJU'STIFIABLY. *ad.* In a manner not to be defended.

UNJU'STLY. *ad.* In a manner contrary to right (*Denham*).

To UNKE'NNEL. *v. a.* 1. To drive from his hole (*Dryden*). 2. To rouse from his secrecy or retreat (*Shakspeare*).

UNKE'NT. *a.* (*un* and *ken*, to know.) Unknown: obsolete (*Spenser*).

UNKE'PT. *a.* 1. Not kept; not retained. 2. Unobserved; unobeyed (*Hooker*).

UNKI'ND. *a.* Not favourable; not benevolent.

UNKI'NDLY. *a.* 1. Unnatural; contrary to nature (*Spenser*). 2. Malignant; unfavourable (*Milton*).

Unki'ndly. *ad.* 1. Without kindness, or affection (*Denham*). 2. Contrarily to nature (*Milton*).

UNKI'NDNESS. *s.* Malignity; ill-will; want of affection (*Clarendon*).

To U'NKING. *v. a.* To deprive of royalty (*Shakspeare*).

U'NKLE. *s.* (See Uncle.) The brother of one's father or mother (*Dryden*).

UNKNI'GHTLY. *a.* Unbecoming a knight.

To UNKNI'T. *v. a.* 1. To unweave; to separate (*Shakspeare*). 2. To open (*Shakspeare*).

To UNKNO'W. *v. a.* To cease to know (*Smith*).

UNKNO'WABLE. *a.* Not to be known (*Watts*).

UNKNO'WING. *a.* 1. Ignorant; not knowing (*Decay of Piety*). 2. Not practised; not qualified (*Pope*).

UNKNO'WINGLY. *ad.* Ignorantly; without knowledge (*Addison*).

UNKNO'WN. *a.* 1. Not known (*Roscommon*). 2. Greater than is imagined (*Bacon*). 3. Not having cohabitation (*Shakspeare*). 4. Not having communication (*Addison*).

UNLA'BOURED. *a.* 1. Not produced by labour (*Dryden*). 2. Not cultivated by labour (*Blackmore*). 3. Spontaneous; voluntary.

To UNLA'CE. *v. a.* 1. To loose any thing fastened with strings. 2. To loose a woman's dress (*Donne*). 3. To divest of ornaments (*Shakspeare*).

To UNLA'DE. *v. a.* 1. To remove from the vessel which carries. 2. To exonerate that which carries (*Dryden*). 3. To put out. Used of a vessel (*Acts*).

UNLA'ID. *a.* 1. Not placed; not fixed (*Hooker*). 2. Not pacified; not stilled (*Milton*).

UNLAME'NTED. *a.* Not deplored (*Clarendon*).

To UNLA'TCH. *v. a.* To open by lifting up the latch (*Dryden*).

UNLA'WFUL. *a.* Contrary to law; not permitted by the law (*South*).

UNLA'WFULLY. *ad.* 1. In a manner contrary to law or right. 2. Illegitimately; not by marriage (*Addison*).

UNLA'WFULNESS. *s.* 1. Contrariety to law (*Hooker*). 2. Illegitimacy.

To UNLE'ARN. *v. a.* To forget, or disuse, what has been learned.

UNLE'ARNED. *a.* 1. Ignorant; not informed; not instructed. 2. Not gained by study; not known (*Milton*). 3. Not suitable to a learned man (*Shakspeare*).

UNLE'ARNEDLY. *ad.* Ignorantly; grossly (*Brown*).

UNLEA'VENED. *a.* Not fermented; not mixed with fermenting matter (*Exodus*).

UNLE'ISUREDNESS. *s.* Business; want of time; want of leisure: not in use (*Boyle*).

UNLE'SS. *conjunct.* Except; if not; supposing that not (*Swift*).

UNLE'SSONED. *a.* Not taught (*Shakspeare*).

UNLE'TTERED. *a.* Unlearned; untaught.

UNLE'VELLED. *a.* Not laid even.

UNLIBI'DINOUS. *a.* Not lustful; pure from carnality (*Milton*).

UNLI'CENSED. *a.* Having no regular permission (*Milton*).

UNLI'CKED. *a.* Shapeless; not formed: from the opinion that the bear licks her young to shape (*Shakspeare*).

UNLI'GHTED. *a.* Not kindled; not set on fire (*Prior*).

UNLI'KE. *a.* 1. Dissimilar; having no resemblance (*Pope*). 2. Improbable; unlikely; not likely (*Bacon*).

UNLI'KELIHOOD. Unli'keliness. *s.* (from *unlikely*.) Improbability (*South*).

UNLI'KELY. *a.* 1. Improbable; not such as can be reasonably expected (*Sidney*). 2. Not promising any particular event (*Swift*).

Unli'kely. *ad.* Improbably (*Pope*).

UNLI'KENESS. *s.* Dissimilitude; want of resemblance (*Dryden*).

UNLI'MITABLE. *a.* Admitting no bounds.

UNLI'MITED. *a.* 1. Having no bounds, or limits (*Tillotson*). 2. Undefined; not bounded by proper exceptions (*Hooker*). 3. Unconfined; not restrained (*Rogers*).

UNLI'MITEDLY. *ad.* Boundlessly; without bounds (*Decay of Piety*).

UNLI'NEAL. *a.* Not coming in the order of succession (*Shakspeare*).

To UNLI'NK. *v. a.* To untwist; to open (*Shakspeare*).

UNLI'QUIFIED. *a.* Unmelted; undissolved (*Addison*).

To UNLO'AD. *v. a.* 1. To disburden; to exonerate; to free from load (*Creech*). 2. To put off any thing burdensome (*Shakspeare*).

To UNLO'CK. *v. a.* 1. To open what is shut with a lock (*Shakspeare*). 2. To open in general (*Milton*).

UNLOOK'ED. Unloo'ked *for*. *a.* Unexpected; not foreseen (*Shakspeare*).

To UNLOO'SE. *v. a.* To loose. A word perhaps barbarous and ungrammatical, the particle prefixed implying negation; so that *to unloose*, is properly *to bind* (*Shakspeare*).

To Unloo'se. *v. n.* To fall in pieces; to lose all union and connexion (*Collier*).

UNLO'SABLE. *a.* Not to be lost (*Boyle*).

UNLO'VELINESS. *s.* Unamiableness; inability to create love (*Sidney*).

UNLO'VELY. *a.* That cannot excite love.

UNLO'VING. *a.* Unkind; not fond (*Shakspeare*).

UNLU'CKILY. *ad.* Unfortunately; by ill luck (*Addison*).

UNLU'CKY. *a.* 1. Unfortunate; producing unhappiness (*Boyle*). 2. Unhappy; miserable; subject to frequent misfortunes (*Spenser*). 3. Slightly mischievous; mischievously waggish (*Tusser*). 4. Ill-omened; inauspicious (*Dryden*).

UNLU'STROUS. *a.* Wanting splendour; wanting lustre (*Shakspeare*).

To UNLU'TE. *v. a.* To separate vessels closed with chymical cement (*Boyle*).

UNMA'DE. *a.* 1. Not yet formed; not created (*Spenser*). 2. Deprived of form or qualities (*Woodward*). 3. Omitted to be made (*Blackmore*).

UNMA'IMED. *a.* Not deprived of any essential part (*Pope*).

UNMA'KABLE. *a.* Not possible to be made (*Grew*).

To UNMA'KE. *v. a.* To deprive of former qualities before possessed; to deprive of form or being (*Dryden*).

To UNMA'N. *v. a.* 1. To deprive of the constituent qualities of a human being, as reason (*South*). 2. To emasculate. 3. To break into irresolution; to deject (*Dryden*).

UNMA'NAGEABLE. *a.* 1. Not manageable; not easily governed (*Glanville*). 2. Not easily wielded.

UNMA'NAGED. *a.* 1. Not broken by horsemanship (*Taylor*). 2. Not tutored; not educated (*Felton*).

UNMA'NLIKE. Unma'nly. *a.* 1. Unbecoming a human being (*Collier*). 2. Unsuitable to a man; effeminate (*Addison*).

UNMA'NNERED. *a.* Rude; brutal; uncivil (*Ben Jonson*).

UNMA'NNERLINESS. *s.* Breach of civility; ill behaviour (*Locke*).

UNMA'NNERLY. *a.* Ill bred; not civil; not complaisant (*Swift*).

Unma'nnerly. *ad.* Uncivilly (*Shakspeare*).

UNMANU'RED. *a.* Not cultivated (*Spenser.*)

UNMA'RKED. *a.* Not observed; not regarded (*Pope*).

UNMA'RRIED. *a.* Having no husband, or no wife (*Bacon. Dryden*).

To UNMA'SK. *v. a.* 1. To strip of a mask. 2. To strip of any disguise (*Roscommon*).

To Unma'sk. *v. n.* To put off the mask (*Shakspeare*).

UNMA'SKED. *a.* Naked; open to the view (*Dryden*).

UNMA'STERABLE. *a.* Unconquerable; not to be subdued (*Brown*).

UNMA'STERED. *a.* 1. Not subdued. 2. Not conquerable (*Dryden*).

UNMA'TCHABLE. *a.* Unparalleled; unequalled (*Hooker*).

UNMA'TCHED. *a.* Matchless; having no match, or equal (*Dryden*).

UNME'ANING. *a.* Expressing no meaning; having no meaning (*Pope*).

UNME'ANT. *a.* Not intended (*Dryden*).

UNME'ASURABLE. *a.* Boundless; unbounded (*Shakspeare*).

UNME'ASURED. *a.* 1. Immense; infinite (*Blackmore*). 2. Not measured; plentiful beyond measure (*Milton*).

UNME'DITATED. *a.* Not formed by previous thought (*Milton*).

UNMEE'T. *a.* Not fit; not proper; not worthy (*Shakspeare*).

UNME'LLOWED. *a.* Not fully ripened (*Shakspeare*).

UNME'NTIONED. *a.* Not told; not named (*Clarendon*).

UNME'RCHANTABLE. *a.* Unsaleable; not vendible (*Carew*).

UNME'RCIFUL. *a.* 1. Cruel; severe; inclement (*Rogers*). 2. Unconscionable; exorbitant (*Pope*).

UNME'RCIFULLY. *ad.* Without mercy; without tenderness (*Addison*).

UNME'RCIFULNESS. *s.* Inclemency; cruelty; want of tenderness (*Taylor*).

UNME'RITED. *a.* Not deserved; not obtained otherwise than by favour (*Milton*).

UNME'RITEDNESS. *s.* State of being undeserved (*Boyle*).

UNMI'NDED. *a.* Not heeded; not regarded (*Milton*).

UNMI'NDFUL. *a.* Not heedful; not regardful; negligent; inattentive (*Swift*).

To UNMI'NGLE. *v. a.* To separate things mixed (*Bacon*).

UNMI'NGLED. *a.* Pure; not vitiated by any thing mingled (*Pope*).

UNMI'RY. *a.* Not fouled with dirt (*Gay*).

UNMI'TIGATED. *a.* Not softened (*Shakspeare*).

UNMI'XED. Unmi'xt. *a.* Not mingled with any thing; pure; not corrupted by additions (*Bacon. Pope*).

UNMO'ANED. *a.* Not lamented (*Shakspeare*).

UNMO'IST. *a.* Not wet (*Philips*).

UNMOI'STENED. *a.* Not made wet (*Boyle*).

UNMOLE'STED. *a.* Free from disturbance; free from external trouble (*Rogers*).

To UNMOO'R. *v. a.* To loose from land by taking up the anchors (*Pope*).

UNMO'RALIZED. *a.* Untutored by morality (*Norris*).

UNMO'RTIFIED. *a.* Not subdued by sorrow and severities (*Rogers*).

UNMO'VEABLE. *a.* Such as cannot be removed or altered (*Locke*).

UNMO'VED. *a.* 1. Not put out of one place into another (*May. Locke*). 2. Not changed in resolution (*Milton*). 3. Not affected; not touched with any passion (*Pope*). 4. Unaltered by passion (*Dryden*).

UNMO'VING. *a.* 1. Having no motion (*Cheyne*). 2. Having no power to raise the passions; unaffecting.

To UNMO'ULD. *v. a.* To change as to the form (*Milton*).

UNMO'URNED. *a.* Not lamented; not deplored (*Southern*).

To UNMU'FFLE. *v. a.* To put off a covering from the face (*Milton*)

UNMU'SICAL. *a.* Not harmonious; not pleasing by sound (*Ben Jonson*).

To UNMU'ZZLE. *v. a.* To loose from a muzzle (*Shakspeare*).

UNNA'MED. *a.* Not mentioned (*Milton*).

UNNA'TURAL. *a.* 1. Contrary to the laws of nature; contrary to the common instincts (*L'Estrange*). 2. Acting without the affections implanted by nature (*Denham*). 3. Forced; not agreeable to the real state of persons or things (*Addison*).

UNNA'TURALLY. *ad.* In opposition to nature (*Tillotson*).

UNNA'TURALNESS. *s.* Contrariety to nature (*Sidney*).

UNNA'VIGABLE. *a.* Not to be passed by vessels; not to be navigated (*Cowley*).

UNNE'CESSARILY. *ad.* Without necessity; without need; needlessly (*Broome*).

UNNE'CESSARINESS. *s.* Needlessness (*Decay of Piety*).

UNNE'CESSARY. *a.* Needless; not wanted; useless (*Hooker*).

UNNE'IGHBOURLY. *a.* Not kind; not suitable to the duties of a neighbour (*Garth*).

UNNE'IGHBOURLY. *ad.* In a manner not suitable to a neighbour; with malevolence; with mutual mischief (*Shakspeare*).

To UNNE'RVE. *v. a.* To weaken; to enfeeble (*Addison*).

UNNE'RVED. *a* Weak; feeble (*Shakspeare*).

UNNE'TH. UNNE'THES. *ad.* (This is from un and eað, Saxon, *easy*; and ought therefore to be written *uneath.*) Scarcely; hardly; not without difficulty: obsolete (*Spenser*).

UNNO'BLE. *a* Mean; ignominious; ignoble (*Shakspeare*).

UNNO'TED. *a.* 1. Not observed; not regarded (*Shakspeare*). 2. Not honoured (*Pope*).

UNNU'MBERED. *a.* Innumerable (*Raleigh*).

UNOBJE'CTED. *a.* Not charged as a fault, or contrary to argument (*Atterbury*).

UNOBNO'XIOUS. *a.* Not liable; not opposed to any hurt (*Donne*).

UNOBSE'QUIOUSNESS. *s.* Incompliance; disobedience (*Brown*).

UNOBSE'RVABLE. *a.* Not to be observed; not discoverable (*Boyle*).

UNOBSE'RVANT. *a.* 1. Not obsequious. 2. Not attentive (*Glanville*).

UNOBSE'RVED. *a.* Not regarded; not attended to; not heeded (*Atterbury*).

UNOBSE'RVING. *a.* Inattentive; not heedful (*Dryden*).

UNOBSTRU'CTED. *a.* Not hindered; not stopped (*Blackmore*).

UNOBSTRU'CTIVE. *a.* Not raising any obstacle (*Blackmore*).

UNOBTA'INED. *a.* Not gained; not acquired (*Hooker*).

UNO'BVIOUS. *a.* Not readily occurring.

UNO'CCUPIED. *a.* Unpossessed (*Grew*).

UNOFFE'NDING. *a.* 1. Harmless; innocent (*Dryden*). 2. Sinless; pure from fault (*Rogers*).

UNO'FFERED. *a.* Not proposed to acceptance (*Clarendon*).

To UNO'IL. *v. a.* To free from oil (*Dryden*).

UNONA, in botany, a genus of the class polyandria, order polygynia. Calyx three-leaved; petals six; berries two or three-seeded, beaded like a necklace. Four species, natives of the East or West Indies.

UNO'PENING. *a.* Not opening (*Pope*).

UNO'PERATIVE. *a.* Producing no effects (*South*).

UNOPPO'SED. *a.* Not encountered by any hostility or obstruction (*Dryden*).

UNO'RDERLY. *a.* Disordered; irregular (*Sanderson*).

UNO'RDINARY. *a.* Uncommon; unusual: not used (*Locke*).

UNO'RGANIZED. *a.* Having no parts instrumental to the motion or nourishment of the rest (*Grew*).

UNORI'GINAL. UNORI'GINATED. *a.* Having no birth; ungenerated (*Milton*).

UNO'RTHODOX. *a.* Not holding pure doctrine (*Decay of Piety*).

UNO'WED. *a.* Having no owner (*Shakspeare*).

UNO'WNED. *a.* 1. Having no owner. 2. Not acknowledged; not claimed (*Milton*).

To UNPA'CK. *v. a.* 1. To disburden; to exonerate (*Shakspeare*). 2. To open any thing bound together (*Boyle*).

UNPA'CKED. *a.* Not collected by unlawful artifices (*Hudibras*).

UNPA'ID. *a.* 1. Not discharged (*Milton*). 2. Not having dues or debts (*Pope*). 3. UNPAID *for.* That for which the price is not yet given (*Shakspeare*).

UNPA'INED. *a.* Suffering no pain (*Milton*).

UNPA'LATABLE. *a.* Nauseous; disgusting (*Dryden*).

UNPA'RAGONED. *a.* Unequalled; unmatched (*Shakspeare*).

UNPA'RALLELED. *a.* Not matched; not to be matched; having no equal (*Addison*).

UNPA'RDONABLE. *a.* (*impardonable*, Fr.) Irremissible (*Hooker*).

UNPA'RDONABLY. *ad.* Beyond forgiveness (*Atterbury*).

UNPA'RDONED. *a.* 1. Not forgiven (*Rogers*). 2. Not discharged; not cancelled by a legal pardon (*Raleigh*).

UNPA'RDONING. *a.* Not forgiving (*Dryden*).

UNPA'RLIAMENTARINESS. *s.* Contrariety to the usage or constitution of parliament (*Clarendon*).

UNPA'RLIAMENTARY. *a.* Contrary to the rules of parliament (*Swift*).

UNPA′RTED. *a.* Undivided; not separated (*Prior*).

UNPA′RTIAL. *a.* Equal; honest (*Sanderson*).

UNPA′RTIALLY. *ad.* Equally; indifferently (*Hooker*).

UNPA′SSABLE. *a.* 1. Admitting no passage (*Watts*). 2. Not current; not suffered to pass (*Locke*).

UNPA′SSIONATE. UNPA′SSIONATED. *a.* Free from passion; calm; impartial (*Wotton. Glanville*).

UNPA′SSIONATELY. *ad.* Without passion (*King Charles*).

UNPA′THED. *a.* Untracked; unmarked by passage (*Shakspeare*).

UNPA′WNED. *a.* Not given to pledge.

To UNPA′Y. *v. a.* To undo (*Shakspeare*).

UNPEA′CEABLE. *a.* Quarrelsome; inclined to disturb the tranquillity of others (*Tillotson*).

To UNPE′G. *v. a.* To open any thing closed with a peg (*Shakspeare*).

UNPE′NSIONED. *a.* Not kept in dependance by a pension (*Pope*).

To UNPE′OPLE. *v. a.* To depopulate; to deprive of inhabitants (*Addison*).

UNPERCE′IVED. *a.* Not observed; not heeded; not sensibly discovered; not known.

UNPERCE′IVEDLY. *ad.* So as not to be perceived (*Boyle*)

UNPE′RFECT. *a.* (*imparfait*, Fr. *imperfectus*, Lat.) Incomplete (*Peacham*).

UNPE′RFECTNESS. *s.* Imperfection; incompleteness (*Ascham*).

UNPERFO′RMED. *a.* Undone; not done (*Taylor*).

UNPE′RISHABLE. *a.* Lasting to perpetuity; exempt from decay (*Hammond*).

UNPERPLE′XED. *a* Disentangled; not embarrassed (*Locke*).

UNPERSPI′RABLE. *a.* Not to be emitted through the pores of the skin (*Arbuthnot*).

UNPERSUA′DABLE. *a.* Inexorable; not to be persuaded (*Sidney*).

UNPE′TRIFIED. *a.* Not turned to stone (*Brown*).

UNPHILOSO′PHICAL. *a.* Unsuitable to the rules of philosophy, or right reason (*Collier*).

UNPHILOSO′PHICALLY. *ad.* In a manner contrary to the rules of right reason.

UNPHILOSO′PHICALNESS. *s.* Incongruity with philosophy (*Norris*).

UNPIE′RCED. *a.* Not penetrated; not pierced (*Gay*).

UNPI′LLARED. *a.* Deprived of pillars (*Pope*).

UNPI′LLOWED. *a.* Wanting a pillow.

To UNPI′N. *v. a.* To open what is shut, or fastened with a pin (*Herbert*).

UNPI′NKED. *a.* Not marked with eyelet holes (*Shakspeare*).

UNPI′TIED. *a.* Not compassionated; not regarded with sympathetical sorrow (*Roscommon*).

UNPI′TIFULLY. *ad.* Unmercifully; without mercy (*Shakspeare*).

UNPI′TYING. *a.* Having no compassion (*Granville*).

UNPLA′CED. *a.* Having no place of dependance (*Pope*).

UNPLA′GUED. *a.* Not tormented (*Shakspeare*).

UNPLA′NTED. *a.* Not planted; spontaneous (*Waller*).

UNPLA′USIBLE. *a.* Not plausible; not such as has a fair appearance (*Clarendon*).

UNPLA′USIVE. *a.* Not approving (*Shakspeare*).

UNPLEA′SANT. *a.* Not delighting; troublesome; uneasy (*Woodward*).

UNPLEA′SANTLY. *ad.* Not delightfully; uneasily (*Pope*).

UNPLE′ASANTNESS. *s.* Want of qualities to give delight (*Hooker*).

UNPLEA′SED. *a.* Not pleased; not delighted (*Shakspeare*).

UNPLEA′SING. *a.* Offensive; disgusting; giving no delight (*Milton*).

UNPLI′ANT. *a.* Not easily bent; not conforming to the will (*Wotton*).

To UNPLU′ME. *v. a.* To strip of plumes; to degrade (*Glanville*).

UNPOE′TICAL. UNPOE′TIC. *a.* Not such as becomes a poet (*Bishop Corbet*).

UNPO′LISHED. *a.* 1. Not smoothed; not brightened by attrition (*Stillingfleet*). 2. Not civilized; not refined (*Dryden*).

UNPOLI′TE. *a.* (*impoli*, Fr. *impolitus*, Latin.) Not elegant; not refined; not civil (*Watts*).

UNPOLLU′TED. *a.* (*impollutus*, Latin.) Not corrupted; not defiled (*Milton*).

UNPO′PULAR. *a.* Not fitted to please the people (*Addison*).

UNPO′RTABLE. *a.* Not to be carried.

UNPOSSE′SSED. *a.* Not had; not held; not enjoyed (*Prior*).

UNPOSSE′SSING. *a.* Having no possession (*Shakspeare*).

UNPRA′CTICABLE. *a.* Not feasible.

UNPRA′CTISED. *a.* 1. Not skilful by use and experience (*Milton*). 2. Not known; not familiar by use (*Prior*).

UNPRECA′RIOUS. *a.* Not dependant on another (*Blackmore*).

UNPRE′CEDENTED. *a.* Not justifiable by any example (*Swift*).

To UNPREDI′CT. *v. a.* To retract prediction (*Milton*).

UNPREFE′RRED. *a.* Not advanced (*Collier*).

UNPRE′GNANT. *a.* Not prolific; not quick of wit (*Shakspeare*).

UNPREJU′DICATE. *a.* Not prepossessed by any settled notions (*Taylor*).

UNPRE′JUDICED. *a.* Free from prejudice; void of preconceived notions (*Tillotson*).

UNPRELA′TICAL. *a.* Unsuitable to a prelate (*Clarendon*).

UNPRE′MEDITATED. *a.* Not prepared in the mind beforehand (*Milton*).

UNPREPA′RED. *a.* 1. Not fitted by previous measures (*Milton*). 2. Not made fit for the dreadful moment of departure (*Shakspeare*).

UNPREPA'REDNESS. *s.* State of being unprepared (*King Charles*).

UNPREPOSSE'SSED. *a.* Not prepossessed; not preoccupied by notions (*South*).

UNPRE'SSED. *a.* 1. Not pressed (*Tickel*). 2. Not enforced (*Clarendon*).

UNPRETE'NDING. *a.* Not claiming any distinctions (*Pope*).

UNPREVA'ILING. *a.* Being of no force (*Shakspeare*).

UNPREVE'NTED. *a.* 1. Not previously hindered (*Shakspeare*). 2. Not preceded by any thing (*Milton*).

UNPRI'NCELY. *a.* Unsuitable to a prince.

UNPRI'NCIPLED. *a.* Not settled in tenets or opinions (*Milton*).

UNPRI'SABLE. *a.* Not valued; not of estimation (*Shakspeare*).

UNPRI'SONED. *a.* Set free from confinement (*Donne*).

UNPRI'ZED. *a.* Not valued (*Shakspeare*).

UNPROCLA'IMED. *a.* Not notified by a public declaration (*Milton*).

UNPROFA'NED. *a.* Not violated (*Dryden*).

UNPRO'FITABLE. *a.* Useless; serving no purpose (*Hooker*).

UNPRO'FITABLENESS. *s.* Uselessness (*Addison*).

UNPRO'FITABLY. *ad.* Uselessly; without advantage (*Ben Jonson*).

UNPRO'FITED. *a.* Having no gain (*Shakspeare*).

UNPROLI'FIC. *a.* Barren; not productive (*Hale*).

UNPRO'MISING. *a.* Giving no promise of excellence; having no appearance of value (*Bentley*).

UNPRO'PER. *a.* 1. Not peculiar (*Shakspeare*). 2. Unfit; not right.

UNPRO'PERLY. *ad.* Contrarily to propriety; improperly (*Shakspeare*).

UNPROPI'TIOUS. *a.* Not favourable; inauspicious (*Pope*).

UNPROPO'RTIONED. *a.* Not suited to something else (*Shakspeare*).

UNPROPO'SED. *a.* Not proposed (*Dryden*).

UNPRO'PPED. *a.* Not supported; not upheld (*Milton*).

UNPRO'SPEROUS. *a.* (*improsper*, Latin.) Unfortunate; not prosperous (*Clarendon*).

UNPRO'SPEROUSLY. *ad.* Unsuccessfully (*Taylor*).

UNPROTE'CTED. *a.* Not protected; not supported; not defended (*Hooker*).

UNPRO'VED. *a.* 1. Not tried; not known by trial (*Spenser*). 2. Not evinced by argument (*Boyle*).

To UNPROVI'DE. *v. a.* To divest of resolution or qualifications (*Southern*).

UNPROVI'DED. *a.* 1. Not secured or qualified by previous measures (*Shakspeare*). 2. Not furnished (*Sprat*).

UNPROVO'KED. *a.* Not provoked (*Dryden*).

UNPU'BLISHED. *a.* 1. Secret; unknown (*Shakspeare*). 2. Not given to the public.

UNPU'NISHED. *a.* (*impunis*, Fr.) Not punished; suffered to continue in impunity (*L'Estrange*).

UNPU'RCHASED. *a.* Unbought (*Denham*).

UNPU'RIFIED. *a.* 1. Not freed from recrement. 2. Not cleansed from sin (*Decay of Piety*).

UNPU'TREFIED. *a.* Not corrupted by rottenness (*Arbuthnot*).

To UNQUA'LIFY. *v. a.* To disqualify; to divest of qualification (*Atterbury*).

UNQUA'RRELABLE. *a.* Such as cannot be impugned (*Brown*).

To UNQUE'EN. *v. a.* To divest of the dignity of queen (*Shakspeare*).

UNQUE'NCHABLE. *a.* Unextinguishable (*Milton*).

UNQUE'NCHABLENESS. *s.* Unextinguishableness (*Hakewill*).

UNQUE'NCHED. *a.* 1. Not extinguished (*Bacon*). 2. Not extinguishable (*Arbuthnot*).

UNQUE'STIONABLE. *a.* 1. Indubitable; not to be doubted (*Wotton*). 2. Such as cannot bear to be questioned without impatience (*Shakspeare*).

UNQUE'STIONABLY. *ad.* Indubitably; without doubt (*Sprat*).

UNQUE'STIONED. *a.* 1. Not doubted; passed without doubt (*Brown*). 2. Indisputable; not to be opposed (*Ben Jonson*). 3. Not interrogated; not examined (*Dryden*).

UNQUI'CK. *a.* Motionless; not alive (*Daniel*).

UNQUI'CKENED. *a.* Not animated; not ripened to vitality (*Blackmore*).

UNQUI'ET. *a.* (*inquiet*, Fr. *inquietus*, Lat.) 1. Moved with perpetual agitation; not calm not still (*Milton*). 2. Disturbed; full of perturbation; not at peace (*Shakspeare*). 3. Restless; unsatisfied (*Pope*).

UNQUI'ETLY. *ad.* Without rest (*Shakspeare*).

UNQUI'ETNESS. *s.* 1. Want of tranquillity (*Denham*). 2. Want of peace (*Spenser*). 3. Restlessness; turbulence (*Dryden*). 4. Perturbation; uneasiness (*Taylor*).

UNRA'CKED. *a.* Not poured from the lees (*Bacon*).

UNRA'KED. *a.* Not thrown together and covered. Used only of fires (*Shakspeare*).

UNRA'NSACKED. *a.* Not pillaged.

UNRA'NSOMED. *a.* Not set free by payment for liberty (*Pope*).

To UNRA'VEL. *v. a.* 1. To disentangle; to extricate; to clear (*Arbuthnot*). 2. To disorder; to throw out of the present order (*Dryden*). 3. To clear up the intrigue of a play (*Pope*).

UNRA'ZORED. *a.* Unshaven (*Milton*).

UNREA'CHED. *a.* Not attained (*Dryd.*).

UNRE'AD. *a.* 1. Not read; not publicly pronounced (*Donne*). 2. Untaught; not learned in books (*Dryden*).

UNRE'ADINESS. *s.* 1. Want of readiness; want of promptness (*Hooker*). 2. Want of preparation (*Taylor*).

UNRE'ADY. *a.* 1. Not prepared; not fit

(*Shakspeare*). 2. Not prompt; not quick (*Brown*). 3. Awkward; ungain (*Bacon*).

UNRE'AL. *a.* Unsubstantial; having only appearance (*Shakspeare*).

UNRE'ASONABLE. *a.* 1. Not agreeable to reason (*Hooker*). 2. Exorbitant; claiming or insisting on more than is fit (*Dryden*). 3. Greater than is fit; immoderate (*Atterbury*).

UNRE'ASONABLENESS. *s.* 1. Inconsistency with reason (*Hammond*). 2. Exorbitance; excessive demand (*Addison*).

UNRE'ASONABLY. *ad.* 1. In a manner contrary to reason. 2. More than enough (*Shakspeare*).

To UNRE'AVE. *v. a.* To unravel (*Spenser*).

UNREBA'TED. *a.* Not blunted (*Hakewill*).

UNREBU'KEABLE. *a.* Obnoxious to no censure (*Timothy*).

UNRECE'IVED. *a.* Not received (*Hook.*).

UNRECLAI'MED. *a.* 1. Not tamed (*Shakspeare*). 2. Not reformed (*Rogers*).

UNRECONCI'LEABLE. *a.* 1. Not to be appeased; implacable (*Shakspeare*). 2. Not to be made consistent with (*Hammond*).

UNRE'CONCILED. *a.* Not reconciled (*Shakspeare*).

UNRECO'RDED. *a.* Not kept in remembrance by public monuments (*Pope*).

UNRECO'UNTED. *a.* Not told; not related (*Shakspeare*).

UNRECRU'ITABLE. *a.* Incapable of repairing the deficiencies of an army (*Milton*).

UNRECU'RING. *a.* Irremediable (*Shakspeare*).

UNREFO'RMABLE. *a.* Not to be put into a new form (*Hammond*).

UNREFO'RMED. *a.* 1. Not amended; not corrected (*Davies*). 2. Not brought to newness of life (*Hammond*).

UNREFRE'SHED. *a.* Not cheered; not relieved (*Arbuthnot*).

UNREGA'RDED. *a.* Not heeded; not respected; neglected (*Suckling*).

UNREGE'NERATE. *a.* Not brought to a new life (*Stephens*).

UNRE'GISTERED. *a.* Not recorded (*Shakspeare*).

UNRE'INED. *a.* Not restrained by the bridle (*Milton*).

UNRELE'NTING. *a.* Hard; cruel; feeling no pity (*Smith*).

UNRELIE'VABLE. *a.* Admitting no succour (*Boyle*).

UNRELI'EVED. *a.* 1. Not succoured (*Dryden*). 2. Not eased (*Boyle*).

UNREMA'RKABLE. *a.* 1. Not capable of being observed (*Digby*). 2. Not worthy of notice.

UNREME'DIABLE. *a.* Admitting no remedy (*Sidney*).

UNREME'MBERED. *a.* Not retained in the mind; not recollected (*Wotton*).

UNREME'MBERING. *a.* Having no memory (*Dryden*).

UNREME'MBRANCE. *s.* Forgetfulness; want of remembrance (*Watts*).

UNREMO'VEABLE. *a.* Not to be taken away (*Sidney*).

UNREMO'VEABLY. *ad.* In a manner that admits no removal (*Shakspeare*).

UNREMO'VED. *a.* 1. Not taken away (*Hammond*). 2. Not capable of being removed (*Milton*).

UNREPA'ID. *a.* Not recompensed; not compensated (*Dryden*).

UNREPE'ALED. *a.* Not revoked; not abrogated (*Blackmore*).

UNREPE'NTANT. UNREPE'NTING. *a.* Not repenting; not penitent; not sorrowful for sin (*Milton. Roscommon*).

UNREPE'NTED. *a.* Not expiated by penitential sorrow (*Hooker*).

UNREPI'NING. *a.* Not peevishly complaining (*Rowe*).

UNREPLE'NISHED. *a.* Not filled (*Boyle*).

UNREPRIE'VABLE. *a.* Not to be respited from penal death (*Shakspeare*).

UNREPRO'ACHED. *a.* Not upbraided; not censured (*King Charles*).

UNREPRO'VABLE. *a.* Not liable to blame (*Colossians*).

UNREPRO'VED. *a.* 1. Not censured (*Sandys*). 2. Not liable to censure (*Milton*).

UNREPU'GNANT. *a.* Not opposite (*Hooker*).

UNRE'PUTABLE. *a.* Not creditable (*Rogers*).

UNREQUI'TABLE. *a.* Not to be retaliated.

UNRESE'NTED. *a.* Not regarded with anger (*Rogers*).

UNRESE'RVED. *a.* 1. Not limited by any private convenience (*Rogers*). 2. Open; frank; concealing nothing.

UNRESE'RVEDLY. *ad.* 1. Without limitation (*Boyle*). 2. Without concealment; openly (*Pope*).

UNRESE'RVEDNESS. *s.* 1. Unlimitedness; largeness (*Boyle*). 2. Openness; frankness (*Pope*).

UNRESI'STED. *a.* 1. Not opposed (*Bentley*). 2. Resistless; that cannot be opposed.

UNRESI'STING. *a.* Not opposing; not making resistance (*Bentley*).

UNRESO'LVABLE. *a.* Nor to be solved; insoluble (*South*).

UNRESO'LVED. *a.* 1. Not determined; having made no resolution (*Shakspeare*). 2. Not solved; not cleared (*Locke*).

UNRESO'LVING. *a.* Not resolving; not determined (*Dryden*).

UNRESPE'CTIVE. *a.* Inattentive; taking little notice (*Shakspeare*).

UNRE'ST. *s.* Disquiet; want of tranquillity; unquietness: not in use (*Wotton*).

UNRESTO'RED. *a.* 1. Not restored. 2. Not cleared from an attainder (*Collier*).

UNRESTRA'INED. *a.* 1. Not confined; not hindered (*Dryden*). 2. Licentious; loose (*Shakspeare*). 3. Not limited (*Brown*).

UNRETRA'CTED. *a.* Not revoked; not recalled (*Collier*).

UNREVE'ALED. *a.* Not told; not discovered (*Spenser*).

UNREVE′NGED. *a.* Not revenged (*Fairfax*).

UNRE′VEREND. *a.* Irreverent; disrespectful (*Shakspeare*).

UNRE′VERENTLY. *ad.* Disrepectfully (*Ben Jonson*).

UNREVE′RSED. *a.* Not revoked; not repealed (*Shakspeare*).

UNREVO′KED. *a.* Not recalled (*Milton*).

UNREWA′RDED. *a.* Not rewarded; not recompensed (*L'Estrange*).

To UNRI′DDLE. *v. a.* To solve an enigma; to explain a problem (*Suckling*).

To UNRI′G. *v. a.* To strip of the tackle (*Dryden*).

UNRI′GHT. *a.* Wrong (*Wisdom*).

UNRI′GHTEOUS. *a.* Unjust; wicked; sinful; bad (*Isaiah*).

UNRI′GHTEOUSLY. *ad.* Unjustly; wickedly; sinfully (*Collier*).

UNRI′GHTEOUSNESS. *s.* Wickedness; injustice (*Hall*).

UNRI′GHTFUL. *a.* Not rightful; not just (*Shakspeare*).

To UNRI′NG. *v. a.* To deprive of a ring.

To UNRI′P. *v. a.* (an improper word.) To rip; to cut open (*Taylor*).

UNRI′PE. *a.* 1. Immature; not fully concocted (*Waller*). 2. Not seasonable; not yet proper (*Dryden*). 3. Too early (*Sidney*).

UNRI′PENED. *a.* Not matured (*Addis.*).

UNRI′PENESS. *s.* Immaturity; want of ripeness (*Bacon*).

UNRI′VALLED. *a.* 1. Having no competitor (*Pope*). 2. Having no peer or equal.

To UNRO′L. *v. a.* To open what is rolled or convolved (*Dryden*).

UNROMA′NTIC. *a.* Contrary to romance (*Swift*).

To UNROO′F. *v. a.* To strip off the roof or covering of houses (*Shakspeare*).

UNROO′STED. *a.* Driven from the roost (*Shakspeare*).

To UNROO′T. *v. a.* To tear from the roots; to extirpate; to eradicate (*Dryden*).

UNRO′UGH. *a.* Smooth (*Shakspeare*).

UNRO′UNDED. *a.* Not shaped; not cut to a round (*Donne*).

UNRO′YAL. *a.* Unprincely; not royal (*Sidney*).

To UNRU′FFLE. *v. a.* To cease from commotion, or agitation (*Dryden*).

UNRU′FFLED. *a.* Calm; tranquil; not tumultuous (*Addison*).

UNRU′LED. *a.* Not directed by any superior power (*Spenser*).

UNRU′LINESS. *s.* (from *unruly.*) Turbulence; tumultuousness; licentiousness (*Sou.*).

UNRU′LY. *a.* Turbulent; ungovernable; licentious (*Spenser*).

UNSA′FE. *a.* Not secure; hazardous; dangerous (*Hooker*).

UNSA′FELY. *ad.* Not securely; dangerously (*Dryden*).

UNSA′ID. *a.* Not uttered; not mentioned (*Felton*).

UNSA′LTED. *a.* Not pickled or seasoned with salt (*Arbuthnot*).

UNSA′NCTIFIED. *a.* Unholy; not consecrated; not pious (*Shakspeare*).

UNSA′TIABLE. *a.* (*insatiabilis,* Latin.) Not to be satisfied; greedy without bounds (*Raleigh*).

UNSATISFA′CTORINESS. *s.* Failure of giving satisfaction (*Boyle*).

UNSATISFA′CTORY. *a.* 1. Not giving satisfaction. 2. Not clearing the difficulty (*Stillingfleet*).

UNSA′TISFIED. *a.* 1. Not contented; not pleased (*Bacon*). 2. Not settled in opinion (*Boyle*). 3. Not filled; not gratified to the full (*Shakspeare*).

UNSA′TISFIEDNESS. *s.* (from *unsatisfied.*) The state of being not satisfied (*Boyle*).

UNSA′TISFYING. *a.* Unable to gratify to the full (*Addison*).

UNSA′VOURINESS. *s.* (from *unsavoury.*) 1. Bad taste. 2. Bad smell (*Brown*).

UNSA′VOURY. *a.* 1. Tasteless (*Job*). 2. Having a bad taste (*Milton*). 3. Having an ill smell; fetid (*Brown*). 4. Unpleasing; disgusting (*Hooker*).

To UNSA′Y. *v. a.* To retract; to recant; to deny what has been said (*Milton*).

UNSCA′LY. *a.* Having no scales (*Gay*).

UNSCA′RRED. *a.* Not marked with wounds (*Shakspeare*).

UNSCHOLA′STIC. *a.* Not bred to literature (*Locke*).

UNSCHOO′LED. *a.* Uneducated; not learned (*Hooker*).

UNSCO′RCHED. *a.* Not touched by fire (*Shakspeare*).

UNSCREE′NED. *a.* Not covered; not protected (*Boyle*).

UNSCRI′PTURAL. *a.* Not defensible by scripture (*Atterbury*).

To UNSE′AL. *v. a.* To open any thing sealed (*Dryden*).

UNSE′ALED. *a.* 1. Wanting a seal (*Shakspeare*). 2. Having the seal broken.

To UNSE′AM. *v. a.* To rip; to cut open.

UNSEA′RCHABLE. *a.* Inscrutable; not to be explored (*Milton*).

UNSEA′RCHABLENESS. *s.* Impossibility to be explored (*Bramhall*).

UNSEA′SONABLE. 1. Not suitable to time or occasion; unfit; untimely; ill-timed (*Clarendon*). 2. Not agreeable to the time of the year (*Shakspeare*). 3. Late: as, *unseasonable* time of night.

UNSE′ASONABLENESS. *s.* Disagreement with time or place (*Hale*).

UNSE′ASONABLY. *ad.* Not seasonably; not agreeably to time or occasion (*Hooker*).

UNSE′ASONED. *a.* 1. Unseasonable; untimely; ill-timed: out of use (*Shakspeare*). 2. Unformed; not qualified by use (*Shakspeare*). 3. Irregular; inordinate (*Haywood*). 4. Not kept till fit for use. 5. Not salted: as, *unseasoned* meat.

UNSE′CONDED. *a.* 1. Not supported (*Shakspeare*). 2. Not exemplified a second time (*Brown*).

To UNSE′CRET. *v. a.* To disclose; to divulge (*Bacon*).

Unse′cret. *a.* Not close; not trusty (*Shakspeare*).

UNSECU′RE. *a.* Not safe (*Denham*).

UNSEDU′CED. *a.* Not drawn to ill (*Shakspeare*).

UNSEE′ING. *a.* Wanting the power of vision (*Shakspeare*).

UNSEE′MLINESS. *s.* Indecency; indecorum; uncomeliness (*Hooker*).

UNSEE′MLY. *a.* Indecent; uncomely; unbecoming (*Hooker*).

Unsee′mly. *ad.* Indecently; unbecomingly (*Corinthians*).

UNSEE′N. *a.* 1. Not seen; not discovered (*Bacon*). 2. Invisible; undiscoverable (*Milton*). 3. Unskilled; unexperienced (*Clarend.*).

UNSE′LFISH. *a.* Not addicted to private nterest (*Spectator*).

UNSE′NT. *a.* 1. Not sent. 2. Unsent *for.* Not called by letter or messenger (*Taylor*).

UNSE′PARABLE. *a.* Not to be parted; not to be divided (*Shakspeare*).

UNSE′PARATED. *a.* Not parted (*Pope*).

UNSE′RVICEABLE. *a.* Useless; bringing no advantage or convenience (*Bentley*).

UNSE′RVICEABLY. *ad.* Without use; without advantage (*Woodward*).

UNSE′T. *a.* Not set; not placed (*Hooker*).

To UNSE′TTLE. *v. a.* 1. To make uncertain (*Arbuthnot*). 2. To move from a place (*L'Estrange*). 3. To overthrow.

UNSE′TTLED. *a.* 1. Not fixed in resolution; not diminished; not steady (*South*). 2. Unequable; not regular; changeable (*Bentley*). 3. Not established (*Dryden*). 4. Not fixed in a place of abode (*Hooker*).

UNSE′TTLEDNESS. *s.* 1. Irresolution; undetermined state of mind. 2. Uncertainty; fluctuation (*Dryden*). 3. Want of fixity (*Sou.*).

To UNSE′X. *v. a.* To make otherwise than the sex commonly is (*Shakspeare*).

To UNSHA′CKLE. *v. a.* To loose from bonds (*Addison*).

UNSHA′DOWED. *a.* Not clouded; not darkened (*Glanville*).

UNSHA′KEABLE. *a.* Not subject to concussion: not in use (*Shakspeare*).

UNSHA′KEN. *a.* 1. Not agitated; not moved (*Boyle*). 2. Not subject to concussion. 3. Not weakened in resolution; not moved.

UNSHA′MED. *a.* Not shamed (*Dryden*).

UNSHA′PED. *a.* Mishapen; deformed (*Burnet*).

UNSHA′RED. *a.* Not partaken; not had in common (*Milton*).

To UNSHEA′TH. *v. a.* To draw from the scabbard (*Denham*).

UNSHE′D. *a.* Not spilt (*Milton*).

UNSHE′LTERED. *a.* Wanting a screen; wanting protection (*Decay of Piety*).

UNSHI′ELDED. *a.* Not guarded by the shield (*Dryden*).

To UNSHI′P. *v. a.* To take out of a ship.

UNSHO′CKED. *a.* Not disgusted; not offended (*Tickel*).

UNSHO′D. *a.* (from *unshoed.*) Having no shoes (*Clarendon*).

UNSHOO′K. *part. a.* Not shaken (*Pope*).

UNSHO′RN. *a.* Not clipped (*Milton*).

UNSHO′T. *part. a.* Not hit by shot.

To UNSHO′UT. *v. a.* To retract a shout (*Shakspeare*).

UNSHO′WERED. *a.* Not watered by showers (*Milton*).

UNSHRI′NKING. *a.* Not recoiling; not shunning danger or pain (*Shakspeare*).

UNSHU′NNABLE. *a.* Inevitable (*Shak.*).

UNSI′FTED. *a.* 1. Not parted by a sieve (*May*). 2. Not tried; not known by experience (*Shakspeare*).

UNSI′GHT. *a.* Not seeing (*Hudibras*).

UNSI′GHTED. *a.* Invisible; not seen (*Suckling*).

UNSI′GHTLINESS. *s.* Deformity; disagreeableness to the eye (*Wiseman*).

UNSI′GHTLY. *a.* Disagreeable to the sight (*Milton*).

UNSINCE′RE. *a.* (*insincerus*, Latin.) 1. Not hearty; not faithful. 2 Not genuine; impure; adulterated (*Boyle*). 3. Not sound; not solid (*Dryden*).

UNSINCE′RITY. *s.* Adulteration; cheat; dishonesty of profession (*Boyle*).

To UNSI′NEW. *v. a.* To deprive of strength (*Denham*).

UNSI′NEWED. *a.* Nerveless; weak (*Shakspeare*).

UNSI′NGED. *a.* Not scorched; not touched by fire (*Stephens*).

UNSI′NNING. *a.* Impeccable (*Rogers*).

UNSKA′NNED. *a.* Not measured; not computed (*Shakspeare*).

UNSKI′LFUL. *a.* Wanting art; wanting knowledge (*Shakspeare*).

UNSKI′LFULLY. *ad.* Without knowledge; without art (*Shakspeare*).

UNSKI′LFULNESS. *s.* Want of art; want of knowledge (*Taylor*).

UNSKI′LLED. *a.* Wanting skill; wanting knowledge (*Dryden. Blackmore*).

UNSLA′IN. *a.* Not killed (*Sidney*).

UNSLA′KED. *a.* Not quenched (*Dryden*).

UNSLEE′PING. *a.* Ever wakeful (*Milt.*).

UNSLI′PPING. *a.* Not liable to slip; fast.

UNSMI′RCHED. *a.* Unpolluted; not stained (*Shakspeare*).

UNSMO′KED. *a.* Not smoked (*Swift*).

UNSO′CIABLE. *a.* (*insociabilis*, Latin.) Not kind; not communicative of good; not suitable to society (*Raleigh*).

UNSO′CIABLY. *ad.* Not kindly; without good-nature (*L'Estrange*).

UNSO′ILED. *a.* Not polluted; not tainted; not stained (*Ray*).

UNSO′LD. *a.* Not exchanged for money.

UNSO′LDIERLIKE. *a.* Unbecoming a soldier (*Broome*).

UNSO′LID. *a.* Fluid; not coherent.

UNSO′LVED. *a.* Not explicated (*Watts*).

UNSOO′T, *for unsweet.* (*Spenser*).

UNSOPHI′STICATED. *a.* Not adulterated; not counterfeit (*More*).

UNSO′RTED. *a.* Not distributed by proper separation (*Watts*).

UNSO′UGHT. *a.* 1. Had without seeking (*Fenton*). 2. Not searched; not explored.

UNSO'UND. *a.* 1. Sickly; wanting health (*Arbuthnot*). 2. Not free from cracks. 3. Rotten; corrupted. 4. Not orthodox (*Hooker*). 5. Not honest; not upright (*Shakspeare*) 6. Not true; not certain (*Spenser*). 7. Not fast; not calm (*Daniel*). 8. Not close; not compact (*Mortimer*). 9. Not sincere; not faithful (*Gay*). 10. Not solid; not material (*Spenser*). 11. Erroneous; wrong (*Milton*). 12. Not fast under foot.

UNSO'UNDED. *a.* Not tried by the plummet (*Shakspeare*).

UNSO'UNDNESS. *s.* 1. Erroneousness of belief; want of orthodoxy (*Hooker*). 2. Corruptness of any kind (*Hooker*). 3. Want of strength; want of solidity (*Addison*).

UNSO'URED. *a.* 1. Not made sour (*Bacon*). 2. Not made morose (*Dryden*).

UNSO'WN. *a.* Not propagated by scattering seed (*Bacon*).

UNSPA'RED. *a.* Not spared (*Milton*).

UNSPA'RING. *a.* 1. Not parsimonious (*Milton*). 2. Not merciful.

To UNSPE'AK. *v. a.* To retract; to recant (*Shakspeare*).

UNSPE'AKABLE. *a.* Not to be expressed; ineffable; unutterable (*Hooker*).

UNSPE'AKABLY. *ad.* Inexpressibly; ineffably (*Spectator*).

UNSPE'CIFIED. *a.* Not particularly mentioned (*Brown*).

UNSPE'CULATIVE. *a.* Not theoretical.

UNSPE'D. *a.* Not dispatched; not performed (*Garth*).

UNSPE'NT. *a.* Not wasted; not diminished; not weakened; not exhausted (*Bacon*).

To UNSPHE'RE. *v. a.* To remove from its orb (*Shakspeare*).

UNSPI'ED. *a.* 1. Not searched; not explored (*Milton*). 2. Not seen; not discovered (*Tickel*).

UNSPI'LT. *a.* 1. Not shed (*Denham*). 2. 2. Not spoiled; not marred (*Tusser*).

To UNSPI'RIT. *v. a.* To dispirit; to depress; to deject (*Norris*).

UNSPOI'LED. *a.* 1. Not plundered; not pillaged (*Dryden*). 2. Not marred; not hurt.

UNSPO'TTED. *a.* 1. Not marked with any stain (*Dryden*). 2. Immaculate; not tainted with guilt (*Shakspeare*).

UNSQUA'RED. *a.* Not formed; irregular (*Shakspeare*).

UNSTA'BLE. *a.* (*instabilis*, Latin.) 1. Not fixed; not fast (*Temple*). 2. Inconstant; irresolute (*James*).

UNSTA'ID. *a.* Not cool; not prudent; not settled into discretion; not steady; mutable (*Sandys*).

UNSTA'IDNESS. *s.* 1. Indiscretion; volatile mind. 2. Uncertain motion (*Sidney*).

UNSTA'INED. *a.* Not stained; not died; not discoloured; not dishonoured (*Roscom.*).

To UNSTA'TE. *v. a.* To put out of dignity (*Shakspeare*).

UNSTA'TUTABLE. *a.* Contrary to statute (*Swift*).

UNSTA'UNCHED. *a.* Not stopped; not stayed (*Shakspeare*).

UNSTE'ADFAST. *a.* Not fixed; not fast; not resolute (*Shakspeare*).

UNSTE'ADILY. *ad.* 1. Without any certainty. 2. Inconstantly; not consistently (*Locke*).

UNSTE'ADINESS. *s.* Want of constancy; irresolution; mutability (*Swift*).

UNSTE'ADY. *a.* 1. Inconstant; irresolute (*Rowe*). 2. Mutable; variable; changeable (*Locke*). 3. Not fixed; not settled.

UNSTEE'PED. *a.* Not soaked (*Bacon*).

To UNSTI'NG. *v. a.* To disarm of a sting.

UNSTI'NTED. *a.* Not limited (*Skelton*).

UNSTI'RRED. *a.* Not stirred; not agitated (*Boyle*).

To UNSTI'TCH. *v. a.* To open by picking the stitches (*Collier*).

UNSTO'OPING. *a.* Not bending; not yielding (*Shakspeare*).

To UNSTO'P. *v. a.* To free from stop or obstruction; to open (*Boyle*).

UNSTO'PPED. *a.* Meeting no resistance (*Dryden*).

UNSTRA'INED. *a.* Easy; not forced.

UNSTRA'ITENED. *a.* Not contracted (*Glanville*).

UNSTRE'NGTHENED. *a.* Not supported; not assisted (*Hooker*).

To UNSTRI'NG. *v. a.* 1. To relax any thing strung; to deprive of strings (*Smith*). 2. To loose; to untie (*Dryden*).

UNSTRU'CK. *a.* Not moved; not affected (*Philips*).

UNSTU'DIED. *a.* Not premeditated; not laboured (*Dryden*).

UNSTU'FFED. *a.* Unfilled; unfurnished (*Shakspeare*).

UNSUBSTA'NTIAL. *a.* 1. Not solid; not palpable (*Milton*). 2. Not real (*Addison*).

UNSUCCE'SSFUL. *a.* Not having the wished event; not fortunate (*Cleaveland*).

UNSUCCE'SSFULLY. *ad.* Unfortunately; without success (*South*).

UNSUCCE'SSFULNESS. *s.* Want of success; event contrary to wish (*Hammond*).

UNSUCCE'SSIVE. *a.* Not proceeding by flux of parts (*Brown*).

UNSU'CKED. *a.* Not having the breasts drawn (*Milton*).

UNSU'FFERABLE. *a.* Not supportable; intolerable; not to be endured (*Milton*).

UNSUFFI'CIENCE. *a.* (*insuffisance*, Fr.) Inability to answer the end proposed (*Hooker*).

UNSUFFI'CIENT. *a.* (*insuffisant*, Fr.) Unable; inadequate (*Locke*).

UNSU'GARED. *a.* Not sweetened with sugar (*Bacon*).

UNSUI'TABLE. *a.* Not congruous; not equal; not proportionate (*Tillotson*).

UNSU'ITABLENESS. *s.* Incongruity; unfitness (*South*).

UNSUI'TING. *a.* Not fitting; not becoming (*Dryden*).

UNSU'LLIED. *a.* Not fouled; not disgraced; pure (*Sprat*).

UNSU'NG. *a.* Not celebrated in verse; not recited in verse (*Milton*).

UNSU'NNED. *a.* Not exposed to the sun.

UNSUPE′RFLUOUS. *a.* Not more than enough (*Milton*).

UNSUPPLA′NTED. *a.* 1. Not forced or thrown from under that which supports it (*Philips*). 2. Not defeated by stratagem.

UNSUPPO′RTABLE. *a.* (*insupportable*, French.) Intolerable; such as cannot be endured (*Boyle*).

UNSUPPO′RTED. *a.* 1. Not sustained; not held up (*Milton*). 2. Not assisted (*Brown*).

UNSU′RE. *a.* Not fixed; not certain.

UNSURMO′UNTABLE. *a.* (*insurmountable*, French.) Insuperable; not to be overcome (*Locke*).

UNSUSCE′PTIBLE. *a.* Incapable; not liable to admit (*Swift*).

UNSUSPE′CT. Unsuspe′cted. *a.* Not considered as likely to do or mean ill (*Milton*).

UNSUSPE′CTING. *a.* Not imagining that any ill is designed (*Pope*).

UNSUSPI′CIOUS. *a.* Having no suspicion (*Milton*).

UNSUSTA′INED. *a.* Not supported; not held up (*Pope*).

To UNSWA′THE. *v. a.* To free from folds or convolutions of bandage (*Addison*).

UNSWA′YABLE. *a.* Not to be governed or influenced by another (*Shakspeare*).

UNSWA′YED. *a.* Not wielded; not held in the hand (*Shakspeare*).

To UNSWE′AR. *v. n.* Not to swear; to recant any thing sworn (*Spenser*).

To UNSWE′AT. *v. a.* To ease after fatigue; to cool after exercise (*Milton*).

UNSWO′RN. *a.* Not bound by an oath.

UNTA′INTED. *a.* 1. Not sullied; not polluted (*Roscommon*). 2. Not charged with any crime (*Shakspeare*). 3. Not corrupted by mixture (*Smith*).

UNTA′KEN. *a.* 1. Not taken (*Hayward*). 2. Untaken *up*. Not filled (*Boyle*).

UNTA′LKED *of*. *a.* Not mentioned in the world (*Dryden*).

UNTA′MEABLE. *a.* Not to be tamed; not to be subdued (*Grew*).

UNTA′MED. *a.* Not subdued; not suppressed; not softened by culture (*Spenser*).

To UNTA′NGLE. *v. a.* To loose from intricacy or convolution (*Prior*).

UNTA′STED. *a.* Not tasted; not tried by the palate (*Waller*).

UNTA′STING. *a.* 1. Not perceiving any taste (*Smith*). 2. Not trying by the palate.

UNTA′UGHT. *a.* 1. Uninstructed; uneducated; ignorant; unlettered (*Young*). 2. Debarred from instruction (*Locke*). 3. Unskilled; new; not having use or practice.

To UNTE′ACH. *v. a.* To make to quit, or forget what has been inculcated (*Brown*).

UNTE′MPERED. *a.* Not tempered (*Ezekiel*).

UNTE′MPTED. *a.* 1. Not embarrassed by temptation (*Taylor*). 2. Not invited by any thing alluring (*Cotton*).

UNTE′NABLE. *a.* 1. Not to be held in possession. 2. Not capable of defence (*Clarendon*).

UNTE′NANTED. *a.* Having no tenant.

UNTE′NDER. *a.* Wanting softness; wanting affection (*Shakspeare*).

UNTE′NDERED. *a.* Not offered (*Shakspeare*).

To UNTE′NT. *v. a.* To bring out of a tent (*Shakspeare*).

UNTE′NTED. *a.* (from *tent*.) Having no medicaments applied (*Shakspeare*).

UNTE′RRIFIED. *a.* Not affrighted; not struck with fear (*Milton*).

UNTHA′NKED. *a.* 1. Not repaid with acknowledgment of kindness (*Milton*). 2. Not received with thankfulness (*Dryden*).

UNTHA′NKFUL. *a.* Ungrateful; returning no acknowledgment (*Taylor*).

UNTHA′NKFULLY. *ad.* Without thanks; without gratitude (*Boyle*).

UNTHA′NKFULNESS. *s.* Neglect or omission of acknowledgment for good received; want of sense of benefits, ingratitude (*Hayw.*).

To UNTHI′NK. *v. a.* To recall or dismiss a thought (*Shakspeare*).

UNTHI′NKING. *a.* Thoughtless; not given to reflection (*Locke*).

UNTHO′RNY. *a.* Not obstructed by prickles (*Brown*).

UNTHO′UGHT *of*. *a.* Not regarded; not heeded (*Shakspeare*).

To UNTHRE′AD. *v. a.* To loose (*Milton*).

UNTHRE′ATENED. *a.* Not menaced.

UNTHRI′FT. *s.* An extravagant; a prodigal (*Shakspeare*).

Unthri′ft. *a.* Profuse; wasteful; prodigal; extravagant (*Shakspeare*).

UNTHRI′FTILY. *ad.* Without frugality (*Collier*).

UNTHRI′FTINESS. *s.* Waste; prodigality; profusion (*Hayward*).

UNTHRI′FTY. *a.* 1. Prodigal; profuse; lavish; wasteful (*Sidney*). 2. Not in a state of improvement (*Shakspeare*). 3. Not easily made to thrive or fatten (*Mortimer*).

UNTHRI′VING. *a.* Not thriving; not prospering (*Gov. of the Tongue*).

To UNTHRO′NE. *v. a.* To pull down from a throne (*Milton*).

To UNTI′E. *v. a.* 1. To unbind; to free from bonds (*Shakspeare*). 2. To loosen; to unfasten (*Waller*). 3. To loosen from convolution or knot (*Pope*). 4. To set free from any obstruction (*Taylor*). 5. To resolve; to clear (*Denham*).

UNTI′ED. *a.* 1. Not bound; not gathered in a knot (*Prior*). 2. Not fastened by any binding or knot (*Shaks.*). 3. Not fast. 4. Not held by any tie or band.

UNTI′L. *ad.* 1. To the time that (*Denh.*). 2. To the place that (*Dryden*). 3. To the degree that (*Chronicles*).

Unti′l. *prep.* To (*Judges*).

UNTI′LLED. *a.* Not cultivated (*Blackm.*).

UNTI′MBERED. *a.* Not furnished with timber; weak (*Shakspeare*).

UNTI′MELY. *a.* Happening before the natural time (*Pope*).

Unti′mely. *ad.* Before the natural time.

UNTI′NGED. *a.* 1. Not stained; not discoloured (*Boyle*). 2. Not infected (*Swift*).

UNTI'RABLE. *a.* Indefatigable; unwearied (*Shakspeare*).

UNTI'RED. *a.* Not made weary (*Dryd.*).

UNTI'TLED. *a.* Having no title (*Shaks.*).

UNTO'. *prep.* (It was the old word for *to*; now obsolete.) To. See To (*Hooker*).

UNTO'LD. *a.* 1. Not related (*Waller*). 2. Not revealed (*Dryden*).

UNTO'UCHED. *a.* 1. Not touched; not reached (*Stephens*). 2. Not moved; not affected (*Sidney*). 3. Not meddled with.

UNTO'WARD. *a.* 1. Froward; perverse; vexatious; not easily guided, or taught (*Woodward*). 2. Awkward; ungraceful (*Creech*). 3. Inconvenient; troublesome (*Hudibras*).

UNTO'WARDLY. *a.* Awkward; perverse; froward (*Locke*).

Unto'wardly. *ad.* Awkwardly; ungainly; perversely (*Tillotson*).

UNTRA'CEABLE. *a.* Not to be traced.

UNTRA'CED. *a.* Not marked by any footsteps (*Denham*).

UNTRA'CTABLE. *a.* (*intractabilis*, Lat.) 1. Not yielding to common measures and management; stubborn (*Hayward*). 2. Rough; difficult (*Milton*).

UNTRA'CTABLENESS. *s.* Unwillingness or unfitness to be regulated or managed.

U'NTRAINED. *a.* 1. Not educated; not instructed; not disciplined (*Hayward*). 2. Irregular; ungovernable (*Herbert*).

UNTRANSFE'RRABLE. *a.* Incapable of being given from one to another (*Howel*).

UNTRANSPA'RENT. *a.* Not diaphanous; opaque (*Boyle*).

UNTRA'VELLED. *a.* 1. Never trodden by passengers (*Brown*). 2. Having never seen foreign countries (*Addison*).

To UNTREA'D. *v. a.* To tread back; to go back in the same steps (*Shakspeare*).

UNTREA'SURED. *a.* Not laid up; not reposited (*Shakspeare*).

UNTRE'ATABLE. *a.* Not treatable; not practicable (*Decay of Piety*).

UNTRI'ED. *a.* 1. Not yet attempted (*Milton*). 2. Not yet experienced (*Collier*). 3. Not having passed trial (*Milton*).

UNTRIU'MPHABLE. *a.* Which allows no triumph (*Hudibras*).

UNTRO'D. Untro'dden. *a.* Not passed; not marked by the foot (*Waller*).

UNTRO'LLED. *a.* Not bowled; not rolled along (*Dryden*).

UNTROU'BLED. *a.* 1. Not disturbed by care, sorrow, or guilt (*Shakspeare*). 2. Not agitated; not confuted; free from passion (*Milton*). 3. Not interrupted in the natural course (*Spenser*). 4. Transparent; clear; not mudded (*Bacon*).

UNTRU'E. *a.* 1. False; contrary to reality (*Hooker*). 2. False; not faithful (*Suckling*).

UNTRU'LY. *ad.* Falsely; not according to truth (*Raleigh*).

UNTRU'STINESS. *s.* Unfaithfulness (*Hayward*).

UNTRU'TH. *s.* 1. Falsehood; contrariety to reality. 2. Moral falsehood; not veracity (*Sandys*). 3. Treachery; want of fidelity (*Shaks.*). 4. False assertion (*Atterbury*).

UNTU'NABLE. *a.* Unharmonious; not musical (*Bacon*).

To UNTU'NE. *v. a.* 1. To make incapable of harmony (*Prior*). 2. To disorder (*Sh.*).

UNTU'RNED. *a.* Not turned (*Woodw.*).

UNTU'TORED. *a.* Uninstructed; untaught (*Shakspeare*).

To UNTWI'NE. *v. a.* 1. To open what is held together by convolution (*Waller*). 2. To open what is wrapped on itself (*Bacon*). 3. To separate that which clasps round any thing (*Ascham*).

To UNTWI'ST. *v. a.* To separate any things involved in each other, or wrapped up on themselves (*Taylor*).

To UNVA'IL. *v. a.* To uncover; to strip of a vail (*Denham*).

UNVA'LUABLE. *a.* Inestimable; being above price (*Atterbury*).

UNVA'LUED. *a.* 1. Not prized; neglected (*Shakspeare*). 2. Inestimable; above price (*Shakspeare*).

UNVA'NQUISHED. *a.* Not conquered; not overcome (*Milton*).

UNVA'RIABLE. *a.* (*invariable*, French.) Not changeable; not mutable (*Norris*).

UNVA'RIED. *a.* Not changed; not diversified (*Locke*).

UNVA'RNISHED. *a.* 1. Not overlaid with varnish. 2. Not adorned; not decorated (*Shakspeare*).

UNVA'RYING. *a.* Not liable to change (*Locke*).

To UNVE'IL. *v. a.* 1. To uncover; to divest of a veil (*Pope*). 2. To disclose; to show (*Shakspeare*).

UNVE'ILEDLY. *ad.* Plainly; without disguise (*Boyle*).

UNVE'NTILATED. *a.* Not fanned by the wind (*Blackmore*).

UNVE'RITABLE. *a.* Not true (*Brown*).

UNVE'RSED. *a.* Unacquainted; unskilled (*Blackmore*).

UNVE'XED *a.* Untroubled; undisturbed (*Shakspeare*).

UNVI'OLATED. *a.* Not injured; not broken (*Clarendon*).

UNVI'RTUOUS. *a.* Wanting virtue (*Sh.*).

UNVI'SITED. *a.* Not resorted to (*Milton*).

UNU'NIFORM. *a.* Wanting uniformity (*Decay of Piety*).

UNVO'YAGEABLE. *a.* Not to be passed over or voyaged (*Milton*).

UNU'RGED. *a.* Not incited; not pressed (*Shakspeare*).

UNU'SED. *a.* 1. Not put to use; unemployed (*Sidney*). 2. Not accustomed (*Dryden*).

UNU'SEFUL. *a.* Useless; serving no purpose (*Glanville*).

UNU'SUAL. *a.* Not common; not frequent; rare (*Felton*).

UNU'SUALNESS. *s.* Uncommonness; infrequency (*Broome*).

UNU'TTERABLE. *a.* Ineffable; inexpressible (*Smith*).

UNVU′LNERABLE. *a.* Exempt from wound; not vulnerable (*Shakspeare*).

UNWA′KENED. *a.* Not roused from sleep (*Milton*).

UNWA′LLED. *a.* Having no walls (*Knol.*).

UNWA′RES. *ad.* Unexpectedly; before any caution or expectation (*Fairfax*).

UNWA′RILY. *ad.* Without caution; carelessly; heedlessly (*Digby*).

UNWA′RINESS. *s.* (from *unwary.*) Want of caution; carelessness (*Spectator*).

UNWA′RLIKE. *a.* Not fit for war; not used to war; not military (*Dryden*).

UNWA′RNED. *a.* Not cautioned; not made wary (*Locke*).

UNWA′RRANTABLE. *a.* Not defensible; not to be justified; not allowed (*South*).

UNWA′RRANTABLY. *ad.* Not justifiably; not defensibly (*Wake*).

UNWA′RRANTED. *a.* Not ascertained; uncertain (*Bacon*).

UNWA′RY. *a.* 1. Wanting caution; imprudent; hasty; precipitate (*Milton*). 2. Unexpected: obsolete (*Spenser*).

UNWA′SHED. Unwa′shen. *a.* Not washed; not cleansed by washing (*Duppa*).

UNWA′STED. *a.* Not consumed; not diminished (*Blackmore*).

UNWA′STING. *a.* Not growing less; not decaying (*Pope*).

UNWA′YED. *a.* Not used to travel; not seasoned to the road (*Suckling*).

UNWE′AKENED. *a.* Not weakened (*Boyle*).

UNWE′APONED. *a.* Not furnished with offensive arms (*Raleigh*).

UNWE′ARIABLE. *a.* Not to be tired; indefatigable (*Hooker*).

UNWE′ARIED. *a.* 1. Not tired; not fatigued (*Waller*). 2. Indefatigable; continual; not to be spent; not sinking under fatigue (*Denham*).

To UNWEA′RY. *v. a.* To refresh after weariness (*Temple*).

UNWE′D. *a.* Unmarried (*Shakspeare*).

UNWE′DGEABLE. *a.* Not to be cloven (*Shakspeare*).

UNWEE′DED. *a.* Not cleared from weeds (*Shakspeare*).

UNWEE′PED. *a.* Not lamented. Now *unwept* (*Milton*).

UNWEE′TING. *a.* Ignorant; unknowing (*Spenser*).

UNWE′IGHED. *a.* 1. Not examined by the balance (*King*). 2. Not considerate; negligent (*Shakspeare*).

UNWE′IGHING. *a.* Inconsiderate; thoughtless (*Shakspeare*).

UNWE′LCOME. *a.* Not pleasing; not grateful; not well received (*Denham*).

UNWE′PT. *a.* Not lamented; not bemoaned (*Dryden*).

UNWE′T. *a.* Not moist (*Dryden*).

UNWHI′PT. *a.* Not punished; not corrected with the rod (*Shakspeare*).

UNWHO′LESOME. *a.* 1. Insalubrious; mischievous to health (*Arbuthnot*). 2. Corrupt; tainted (*Shakspeare*).

UNWI′ELDILY. *ad.* Heavily; with difficult motion (*Dryden*).

UNWI′ELDINESS. *s.* Heaviness; difficulty to move, or be moved (*Glanville*).

UNWI′ELDY. *a.* Unmanageable; not easily moving or moved; bulky; weighty; ponderous (*Clarendon*).

UNWI′LLING. *a.* Loath; not contented; not inclined; not complying by inclination (*Hooker*).

UNWI′LLINGLY. *a.* Not with good-will; not without loathness (*Denham*).

UNWI′LLINGNESS. *s.* Loathness; disinclination (*Raleigh*).

To UNWI′ND. *v. a.* 1. To separate any thing convolved; to untwist; to untwine (*Sidney*). 2. To disentangle; to loose from entanglement (*Hooker*).

To Unwi′nd. *v. n.* To admit evolution (*Mortimer*).

UNWI′PED. *a.* Not cleaned (*Shakspeare*).

UNWI′SE. *a.* Weak; defective in wisdom (*Tillotson*).

UNWI′SELY. *ad.* Weakly; not prudently; not wisely (*Sidney*).

To UNWI′SH. *v. a.* To wish that which is not to be (*Shakspeare*).

UNWI′SHED. *a.* Not sought; not desired (*Shakspeare*).

UNWI′ST. *a.* Unthought of; not known.

To UNWI′T. *v. a.* To deprive of understanding: not used (*Shakspeare*).

UNWITHDRA′WING. *a.* Continually liberal (*Milton*).

UNWITHSTOO′D. *a.* Not opposed (*Phil.*).

UNWI′TNESSED. *a.* Wanting testimony; wanting notice (*Hooker*).

UNWI′TTINGLY. *ad.* (properly *unweetingly*, from *unweet.*) Without knowledge; without consciousness (*Sidney*).

UNWO′NTED. *a.* 1. Uncommon; unusual; rare; infrequent (*Glanville*). 2. Unaccustomed; unused (*May*).

UNWO′RKING. *a.* Living without labour (*Locke*).

UNWO′RTHILY. *ad.* Not according to desert (*Broome*).

UNWO′RTHINESS. *s.* Want of worth; want of merit (*Wake*).

UNWO′RTHY. *a.* 1. Not deserving (*Hooker*). 2. Wanting merit (*Whitgift*). 3. Mean; worthless (*Sidney*). 4. Not suitable; not adequate (*Swift*). 5. Unbecoming; vile (*Dryd.*).

UNWO′UNDED. *a.* 1. Not wounded (*Milton*). 2. Not hurt (*Pope*).

To UNWRA′P. *v. a.* To open what is folded.

To UNWRE′ATH. *v. a.* To untwine (*Boy.*).

UNWRI′TING. *a.* Not assuming the character of an author (*Arbuthnot*).

UNWRI′TTEN. *a.* 1. Not written; not conveyed by writing; oral; traditional (*Hale*). 2. Not containing writing (*South*).

UNWRO′UGHT. *a.* Not laboured; not manufactured (*Fairfax*).

UNWRU′NG. *a.* Not pinched (*Shaks.*).

UNXIA, in botany, a genus of the class syngenesia, order polygamia necessaria. Receptacle naked, flat; downless; calyx five-leaved. Two species, South American plants; one of them, unxia camphorata, possessing the odour of camphor.

UNYI'ELDED. *a.* Not given up (*Dryden*).

To UNYO'KE. *v. a.* 1. To loose from the yoke (*Shakspeare*). 2. To part; to disjoin (*Shakspeare*).

UNYO'KED. *a.* 1. Having never worn a yoke (*Dryden*). 2. Licentious; unrestrained (*Shakspeare*).

UNZA, or UNSHA, a town of Russia, in a province of the same name, in the government of Kostroma. It is situate on the river Unza, 92 miles E.N.E. of Kostroma. Lon. 44. 15 E. Lat. 57. 56 N.

UNZO'NED. *a.* Not bound with a girdle (*Prior*).

VOCA'BULARY. *s.* (*vocabularium*, Lat. *vocabulaire*, Fr.) A dictionary; a lexicon; a word-book (*Brown*).

VO'CAL. *a.* (*vocal*, Fr. *vocalis*, Latin.) 1. Having a voice (*Crashaw*). 2. Uttered or modulated by the voice (*Hooker*).

VOCA'LITY. *s.* (*vocalitas*, Latin.) Power of utterance; quality of being utterable by the voice (*Holder*).

To VO'CALIZE. *v. a.* (from *vocal.*) To form into voice (*Holder*).

VO'CALLY. *ad.* (from *vocal.*) In words; articulately (*Hale*).

VOCA'TION. *s.* (*vocation*, Fr. *vocatio*, Lat.) 1. Calling by the will of God (*Hooker*). 2. Summons (*Dryden*). 3. Trade; employment; calling (*Sidney*).

VO'CATIVE. *a.* (*vocatif*, Fr. *vocativus*, Lat.) The grammatical case used in calling or speaking to.

VOCIFERA'TION. *s.* (*vociferatio*, *vocifero*, Lat.) Clamour; outcry (*Arbuthnot*).

VOCIFE'ROUS. *a.* (*vocifero*, Lat.) Clamorous; noisy (*Pope*).

VOERDEN, a town of the United Provinces, in Holland. It was taken by the French in 1672 and 1795. It is seated on the Rhine, 10 miles W. of Utrecht, and 20 S. of Amsterdam. Lon. 4. 58 E. Lat. 52. 6 N.

VOGHERA, a fortified town of Italy, in the duchy of Milan and territory of Pavia. It is seated on the Staffora, 14 miles S.S.W. of Pavia, and 30 S. by W. of Milan. Lon. 9. 10 E. Lat. 44. 59 N.

VOGLABRUCK, a town of the archduchy of Austria, which enjoys the privilege of granting protection to all slaves; and its burghers and merchants, together with their wares, are toll-free through all the Austrian countries. It is 27 miles S.S.E. of Passau. Lon. 13. 40 E. Lat. 48. 1 N.

VOGUE. *s.* (*vogue*, Fr.) Fashion; mode; popular reception (*Roscommon*).

VOICE. *s.* (*voix*, Fr. *vox*, *vocis*, Latin.) 1. Sound emitted by the mouth (*Chapman*). 2. Sound of the mouth, as distinguished from that uttered by another mouth (*Bacon*). 3. Any sound made by breath (*Addison*). 4. Vote; suffrage; opinion expressed (*Knolles*). 5. Language; words; expression (*Fell*).

To VOICE. *v. a.* (from the noun.) 1. To rumour; to report; not used (*Bacon*). 2. To vote: obsolete (*Shakspeare*).

To VOICE. *v. n.* To clamour; to make outcries: obsolete (*South*).

The voice is a subject of great curiosity, both as regards the organs destined for its production, and as regards the agency of air and other constituents in its production. The principal organ of the voice is the larynx; for, when this is injured, the air passes through the windpipe, without yielding any sound. By the larynx, we understand an assemblage of cartilages, joined into a hollow machine, which receives the air from the fauces, and transmits it into the windpipe, connected with it by ligaments and muscular fibres. Among the larger of these cartilages, the annular and scutiform in adults ossify internally. The anterior and larger part of the larynx, which lies almost immediately under the skin, is composed of two cartilages, the thyroid and cricoid, to which the lateral parts of the larynx also belong in such a manner, that the portions of the cricoid cartilage always become larger, as they are higher seated. The back-part of the larynx is composed first of the said annular cartilage, and afterwards of the arytenoid cartilages, connected by muscles. The epiglottis, loosely connected with the thyroid cartilage, is either raised or inclined over the larynx. The vessels arise from the upper and lower thyroids; the nerves are numerous; the inferior ones come from the recurrents; the superior ones from the eighth pair, inosculating in various ways; some also from the intercostal. The former of these nerves is remarkable for its origin in the thorax; for its reflection round the aorta and right subclavian; for its giving rise to some of the nerves of the heart; and for the experiment, which proves, that the voice is destroyed by tying this nerve.

All these cartilages are connected together by various muscles and ligaments, so that the whole may possess mobility, while some of its parts are firm, and others extremely moveable. The scutiform or thyroid cartilage, situated on the fore part, is composed of two, almost quadrangular, plates, inclined to each other in an obtuse angle, projecting forwards. In these plates, two apertures, one on each side for the internal vessels of the larynx, are found sometimes, though rarely. The upper processes of this cartilage, terminating in a thick point, inclining upwards and backwards, are connected with the horns of the os hyoides, by strong ligaments, sometimes mixed with bone. The lower processes are shorter, are adapted to the slightly hollowed, and almost flat surfaces of the cricoid cartilage; and are connected by a very firm articulation, on account of the shortness and strength of the cellular substance which unites them. The middle anterior part is joined by strong perforated ligaments to the middle of the annular cartilage; and likewise by other superior ligaments, proceeding from the descending horn of the scutiform cartilage to the upper part of the annular cartilage.

The cricoid cartilage, anteriorly thick and hard, is increased backwards, in form of a ring unequally truncated; and, in the middle, it is divided into two cavities by a protuberant line. It is firmer than the rest of the cartilages, and forms their basis. From it longitudinal muscular fibres and ligaments descend to the windpipe. The pharynx, connected with each of these cartilages by many muscular layers, receives the larynx into its cavity. From this cartilage a short ligament proceeds to the arytenoid cartilage on each side.

The figure of the two arytenoid cartilages is very complex. It spontaneously divides into two parts, of which the lower is larger, and is connected by a moderately concave base with the thick cricoid cartilage, forming a moveable articulation. It sends a process forwards, which separates the glottis, and sustains the inferior part of the ventricle of the larynx. They ascend upwards, of a triangular figure; the posterior base is hollow, and the anterior side is convex, and divided by three furrows. They are extenuated upwards, till they are at last terminated by a pretty thick, oval, cartilaginous head fixed on them. The lower part of these cartilages is connected by numerous muscular fibres, partly transverse, and partly oblique; of which the different directions are evident, though they cannot be separated. These are called the arytenoid muscles. In their upper part, the arytenoid cartilages are separated by a perpendicular chink, which has been improperly by some called the glottis.

The arytenoid cartilages are connected with the thyroid by transverse ligaments, for the most part sufficiently strong and elastic, but covered with the common mucous membrane of the larynx. These ligaments arise below the middle of the arytenoid cartilages, and are inserted into the flat angle of the thyroid cartilage, and may be separated from each other, by removing the arytenoid cartilages from being in mutual contact, and may be again brought into contiguity by the cartilages approaching each other. This constitutes the true glottis, and is continuous, but at right angles with the above-mentioned chink.

From the same angle of the thyroid cartilage, under a notch, from a firm ligament, a cartilage arises, with an erect slender stalk, of an oval shape, convex before, behind concave, and with its superior extremity reflected backwards and concave. It is kept erect by its own elasticity, so that it rises upright behind the tongue; but it can be so inclined whenever the root of the tongue is pressed backward, that, having become transverse, it completely shuts up and protects the passage into the larynx, which descends between this, the epiglottis, and the arytenoid cartilages. The epiglottis is joined to the tongue by pale membranous fibres, and to the os hyoides by much membranous expansion. It either has no fibres from the thyro-arytenoidal and arytenoidal muscles, or they are too minute to counteract its elasticity.

At the sides of the ligaments of the glottis, two other upper and softer ligaments, less tendinous or elastic, proceed parallel from each arytenoid cartilage to the thyroid. Betwixt these two ligaments of each side a peculiar cavity or ventricle descends, having the figure of a compressed parabolic space, extending downwards betwixt the double membrane of the larynx, with its superior orifice, of an elliptic form, constantly open into the larynx.

Lastly, all the internal cavity of the larynx is lined with the same soft, irritable, mucous membrane we before described in the windpipe. This membrane is moistened by a great number of glands. The uppermost are small, and composed of simple glands. They are seated on the anterior convex part of the epiglottis, and send prolongations through its various perforations and larger sinuses, to its concave side, which are there continued into similar firm glands. Moreover, upon the anterior furrowed surface of the arytenoid cartilages there is on each side a gland, of a loose conglomerate fabric, resembling much a gnomon, composed of round acini, doubtless mucous, of which a loose portion descends on each side as far as the annular cartilage. In the ventricles, there are numerous mucous sinuses. Lastly, all the internal surface of the larynx is full of large mucous pores. All these glands secrete a thin and watery, but, at the same time, viscid mucous.

Has the thyroid gland any similar use? It is of the conglomerate kind, but soft, the coverings of the lobules being much more tender than in the salival glands; it is very large, is anteriorly seated upon the thyroid and cricoid cartilages and windpipe, surrounding with lateral productions the sides of the thyroid; is joined to its companion by an isthmus, which is narrow and emarginated below; and by a middle very thin process it ascends on the fore-part, almost to the os hyoides. This gland is full of a serous, yellowish, and somewhat viscid humour. Does it discharge this fluid into the windpipe or into the œsophagus? Into neither. Are ducts certainly known to open? Does it retain its fluid entirely, and afterwards restore it to the veins, like the thymus, which is analogous in its structure? Is it a conglobate gland? That the use of this gland is very considerable appears from the remarkable size of the arteries which it receives from the carotids, and of its inferior ones from the subclavians. The veins return into the jugulars and subclavians. It has a peculiar muscle, not however constant, arising from the margin of the os hyoides, and sometimes from the lower edge of the thyroid cartilage towards the left, which descends without a fellow, and spreads its tendinous fibres over the gland, upon which also the sterno-hyoidei and sterno-thyroidei muscles are incumbent.

The whole larynx is suspended from the os hyoides, both by ligaments inserted into the superior horns of the thyroid cartilage, and by the middle of its basis, united to the junction of the plates, constituting that cartilage. The larynx, and os hyoides connected with it, may be raised considerably, even half an inch above its mean altitude. This is performed by the biventer muscles, together with the genio-hyoidei, genio-glossi, stylo-glossi, stylo-hyoidei, stylo-pharyngei, thyro-palatini, hyo-thyroidei; either conjunctly or partially. During its elevation, the glottis is rendered narrower, and the ligaments before mentioned approach nearer together. Thus, by the assistance of the action of the arytenoid muscles, both oblique and transverse, the glottis may be accurately closed, so as to resist with an incredible force the pressure of the whole atmosphere.

The whole larynx may also be depressed about half an inch beneath its ordinary situation, by the sterno-hyoidei, sterno-thyroidei, and coraco-hyoidei, as they are called: and, when these are in action, by the anterior and posterior crico-thyroidei. By this motion the arytenoid cartilages remove from each other, and the glottis becomes wider, which is also drawn open by the muscles laterally inserted into the arytenoid cartilages, and by the crico-arytenoidei postici and laterales, and thyro-arytenoidei: these also, by resting upon the ventricles of the larynx, are capable of compressing them. The particular cartilages which form the larynx can scarcely be moved separately.

From the larynx the air comes into the mouth and nostrils. By the mouth, we here mean that large and irregularly shaped cavity, situated between the soft and hard palates, both concave in the middle, and the muscles lying under them, and the lower jaw. The nostrils ascend forwards above the soft palate; they are two broad cavities, included between the septum medium, and the ossa cavernosa, and some other parts. They are every where bony and cartilaginous.

The tongue lies in the middle of the mouth; it is a broad piece of flesh easily changeable into any kind of figure, and readily moved without delay to any part of the mouth; by its own fleshy fibres, and by the muscles attached either to itself or to the os hyoides, which is joined to it by many fleshy fibres and membranes, it may with great facility be made to assume any position or figure. It is drawn forwards by the genio-glossi and genio-hyoidei muscles; backwards, by the stylo-glossi, stylo-hyoidei, cerato-glossi, basio-glossi, chondro-glossi, and biventer; downwards, by the sterno-hyoidei and cerato-hyoidei; and upwards, by the stylo-glossi, stylo-hyoidei, by the biventers, and likewise by the mylo-hyoidei.

So much for the anatomy. It remains that we demonstrate what effects are produced by air, when expelled, during exspiration, by the powers above described, from the lungs through the windpipe into the larynx, and from thence forced through the glottis into the mouth variously configured. These effects are, voice, speech, and singing. Sound only is produced when the air is expelled with so great a velocity through the contracted glottis, that it impinges on the ligaments of the glottis, and thus produces in the larynx that tremor, which, being vibratory on account of its elasticity, it continues and increases. Therefore, from the united vibrations of the ligaments and of the cartilages of the larynx, a sound is produced, which we call the voice, peculiar in every class of animals, and which depends entirely on the larynx and glottis. When there are no vibrations, a whisper is produced.

The strength of the voice depends upon the quantity of air exspired, and the narrowness of the glottis; and therefore, upon capacious lungs easily dilatable, an ample, cartilaginous and elastic larynx and windpipe, the free resonance of the nostrils, and a powerful exspiration. But the acuteness or gravity of the tones we observe to arise from various causes. The former proceeds partly from the narrowness, and partly from the tension, of the glottis, and the latter from its relaxation and dilatation. For hence, the air, in a given time, impinges upon the ligaments of the contracted glottis with more numerous undulations, and causes more frequent vibrations; but when the glottis is dilated, the contrary of all this follows. And from the greater tension of the ligaments, the tremors in like manner become more numerous from the same stroke. Therefore to produce an acute sound, the whole larynx is drawn upwards and forwards; and with greater force as the voice is required to be sharper, insomuch that the head itself is sometimes inclined backwards, that the muscles elevating the larynx may exert their full powers. The truth of this is confirmed by experiment; for by applying the fingers to the larynx when acute sounds are emitted, the elevation of the larynx, which is about half an inch for the octave, is easily felt; and by comparative anatomy, which demonstrates the glottis to be very narrow and cartilaginous in singing birds, and wide in hoarse animals, and such as are low or are mute. This is also illustrated by whistling, where the sharpness of the sound evidently proceeds from the contraction of the mouth: and by musical instruments, in which the narrowness of the opening admitting the air, and the celerity with which it is impelled, are the causes of an acute tone.

Gravity of the voice is produced by opposite circumstances, the depression of the larynx by the causes already described; a wide glottis and a very ample larynx. This is proved by the touch, which easily perceives the descent of the larynx in persons singing, in like manner about half an inch for every octave; by the greater gravity of the voice in males, and by the lowest tones of the voice degenerating into a silent breathing.

Does every diversity of tone proceed from the length of the ligaments of the glottis, which is augmented when the scutiform cartilage is drawn forwards, and the arytenoid ones backwards? Is it according to this rule that the most acute tones are produced by the ligaments being rendered very tense, and therefore vibrating with great celerity? This is asserted by some late anatomists, from experiments, which have been also repeated by some eminent men: they have observed, that when the chords or ligaments of the glottis are tense, the peculiar voice of every kind of animal is produced by blowing air into its trachea: that this voice was rendered more acute by stretching the ligaments, and more grave by loosening them: that by shutting the whole ligament, the voice was suppressed; by shutting the half, the voice was rendered an octave higher; by shutting a third part, a fifth higher, &c. There are not wanting, however, doubts concerning this new theory, arising from the cartilaginous and bony, and consequently immoveable and inextensible, glottis of birds; from the certain production of more acute sounds, in whistling, from the mere contraction of the lips; from the example of women, in which the larynx is softer, but the voice more acute, than in men; from experiments, which shew that more acute sounds are produced by bringing the ligaments of the glottis nearer into contact with each other; and from the total absence of machinery for stretching the ligaments, and drawing the thyroid cartilage forwards from the annular one. But since it appears from experiments, that the tension of the ligaments suffices for producing acute sounds, without the contraction of the glottis, it is probable that difference of tension in the glottis contributes more than a difference of its diameter to the diversity of voice.

Singing is produced when the voice, modulated through various degrees of acuteness and gravity, is expelled through the larynx, while vibrating and suspended between contrary powers, which chiefly distinguishes it from speech. It is a laborious action, on account of the perpetual action of the muscles poising the larynx; and it increases the animal heat, because acute tones require a contracted glottis, which retards the exspiration, and at the same time a great deal of air, to give them strength, and, therefore, deep inspirations are necessary. It tends very much to dry the windpipe, from the accelerated passage of the air; and renders a great deal of mucus necessary, which is the reason why there are such numbers of mucous receptacles in the larynx, amongst which Haller suspects the ventricles before described ought to be numbered.

Speech is performed when the larynx is at rest, in tones differing but little in acuteness and gravity, by variously modifying the voice by the organs of the mouth. Sonorous speech has variations both in the tone, and modifications of the voice by the organs of the mouth.

All speech is reducible to the pronunciation of letters, which differ in various nations, although they agree in the greatest number over the whole world. Of these some are called vowels, which are expressed by the mere emission of the voice through the mouth: other consonants, which are formed by a collision of the tongue against some part of the mouth, lips, or teeth.

VOI′CED. *a.* (from the noun.) Furnished with a voice (*Denham*).

VOID. *a.* (*vuide*, French.) 1. Empty; vacant (*Shakspeare*). 2. Vain; ineffectual; null; vacated (*Swift*). 3. Unsupplied; unoccupied (*Camden*). 4. Wanting; unfurnished; empty (*Whitgift*). 5. Unsubstantial; unreal (*Pope*).

Void. *s.* (from the adjective.) An empty space; vacuum; vacancy (*Pope*).

To Void. *v. a.* (from the adjective; *vuider*, French.) 1. To quit; to leave empty (*Shakspeare*). 2. To emit; to pour out (*Wilkins*). 3. To emit as excrement (*Bacon*). 4. To vacate; to nullify; to annul (*Clarendon*).

To Void. *v. n.* 1. To be emitted (*Wiseman*). 2. To receive what is emitted (*Shaks.*).

VOI′DABLE. *a.* (from *void.*) Such as may be annulled (*Ayliffe*).

VO′IDANCE. *s.* (from *void.*) 1. The act of emptying. 2. Ejection from a benefice.

VOI′DER. *s.* (from *void.*) A basket in which broken meat is carried from the table (*Cleaveland*).

VOI′DNESS. *s.* (from *void.*) 1. Emptiness; vacuity. 2. Nullity; inefficacy. 3. Want of substantiality (*Hakewill*).

VOIGTLAND, a territory of Upper Saxony, one of the four circles of the marquisate of Misnia; bounded on the E. by Bohemia, on the N. by the duchy of Altenburg, and on the W. by Thuringia and Franconia. Plawen is the capital.

VOIGTSBERG, a town and citadel of Upper Saxony, belonging to the elector of Saxony, 18 miles S.S.W. of Zurickau.

VO′ITURE. *s.* (French.) Carriage (*Arbuthnot*).

VO′LANT. *a.* (*volans*, Latin; *volant*, Fr.) 1. Flying; passing through the air (*Wilkins*). 2. Nimble; active (*Philips*).

VO′LATILE. *a.* (*volatilis.* Latin.) 1. Flying; passing through the air (*Bacon*). 2. (*volatile*, French.) Having the power to pass off by spontaneous evaporation (*Milton*). 3. Lively; fickle; changeable of mind; full of spirit; airy (*Swift*).

Volatile alkali, in mineralogy. See Natrum.

Vo′latile. *s.* (*volatile*, French.) A winged animal (*Brown*).

VO′LATILENESS. Volati′lity. *s.* (*volatilité*, French; from *volatile.*) 1. The quality of flying away by evaporation; not fixity (*Bacon*). 2. Mutability of mind; airiness; liveliness.

VOLATILIZATION, in chemistry, vaporization, or the conversion of a solid or fluid into a vapour or volatile aura, by the agency of caloric. Substances are said to be permanently elastic, volatile, or fixed. The permanently elastic fluids or gasses are those which cannot be condensed into a fluid or solid form, by any abstraction of caloric we are capable of producing. Fixed substances, on the contrary, are those which cannot be rendered volatile, or converted into vapour, by any increase of temperature. The pressure of the atmosphere has a very considerable effect in varying the degree at which substances become volatile, that are not naturally so. Some solids, unless subjected to very great pressure, are at once converted into vapour, though most of them pass through the intermediate state of fluidity.

VO'LATILIZE. *v. a.* (*volatiliser*, French.) To make volatile; to subtilize to the highest degree (*Newton*).

VOLCA'NIC. *a.* Appertaining to volcanos; resulting from volcanos.

VOLCANIC SAND, in mineralogy, a species of puzzolana. See the article PUTEOLANA.

VOLCANIC SCHORL, in mineralogy. See SCORLUS.

VOLCANIC FORMATIONS, in mineralogy, the fifth or uppermost of the Wernerian classification. In the article GEOLOGY we have observed, that M. Werner has arranged all the various kinds of rocks that enter into the solid surface under five separate divisions, to which he has given the name of formations, according to what he supposes to be their more ordinary situation in regard to each other, as lying lowest, more superficial, or uppermost.

The volcanic formations, however, are of two kinds or subdivisions, false and true. The former consist of minerals altered to a volcanic appearance, in consequence of the combustion of large beds of coal in their neighbourhood. The substances which are chiefly altered by this means are porcelain, jasper, earths, slag, burnt clay, columnar clay-iron stone, and perhaps polishing slate.

The real volcanic minerals consist of those which have been thrown out of the crater of a volcano, and are of three descriptions. First, ejected stones and ashes; secondly, different kinds of lava; and, thirdly, the matter of muddy eruptions. The stony ejections are those which are always thrown from the summit of the volcano: they accumulate and form the crater, which is a funnel-shaped hollow. Mineralogists have enumerated among ejected stones: 1. Granular limestone, which is said to contain tremolite, pistacite, olivine, augite, Vesuvian, melanite, sommite, and hornblende; 2. Granite; 3. Mica-slate; 4. Green-stone; and, 5. Sand-stone. Lava consists of two subspecies; viz. slag-lava and foam-lava: these do not extend far, having in general flowed, in streams of considerable height, into hollows, and gradually consolidated during its course. Matter of muddy eruptions comprehends volcanic-tuff, which is composed sometimes of ashes, sometimes of vesicular lava, and probably some particular chemical formations. See VOLCANO.

VOLCANO. (from *Vulcanus*, Lat. the god of fire.) A burning mountain, hollow below, and communicating, perhaps, with cavities still deeper than its own, from which it is supplied with fire, and ignited materials, which it usually throws up, after uncertain intervals, through one or more external apertures or spiracles.

Volcanos constitute, without doubt, the most striking and formidable geognostic phænomenon which nature has presented to our view. They are not, indeed, so destructive to the lives of the human race as earthquakes; but they offer to the eye something much more terrific. Their number is very considerable, nearly two hundred having been reckoned by different writers. There is an immense range of them running from north to south on the continent of America, and occupying the summits of many of the Andes, as well as of the Mexican and Californian ridges. There is also a considerable number that spread along the eastern coast of Asia, and sprinkle the Indian islands. Iceland alone contains eight volcanos. One of the loftiest is the Peak of Tenerif, though at present less frequent in its eruptions than many others. Several indeed of those that may perhaps be regarded as the most ancient appear to have spent themselves altogether; while others have been rising, even to our own days, as though it were to supply their place. Among the latter we have a very interesting account, in the Philosophical Transactions for 1708, of a volcano that burst out, for the first time, in the Archipelago, near the island of Erini, in the beginning of May in the preceding year, raising, at the same time, a new island out of the bosom of the deep. Similar eruptions, succeeded by similar islands, have occurred in various instances, in the group of the Azores, and the Sicilian seas; and captain Tillard, of his majesty's sloop Sabrina, has given a very valuable description, in the Phil. Trans. for 1812, of a like phenomenon, which took place no longer ago than June, 1811, in the vicinity of St. Michael's: the island then thrown up having been happily called by him Sabrina, after the name of his own ship.

The two volcanos with which we are best acquainted are those of Etna and Vesuvius. The former has been burning as far back as the records of European history go. We have an account of an eruption during the expedition of the Argonauts, which took place at least twelve centuries before the commencement of the Christian era. The following dates of the remarkable eruptions of this volcano, to the middle of the seventeenth century, are taken from an article in the Philosophical Transactions for 1669.

476 years before Christ. Mentioned by Thucydides.

40 years after Christ. During the reign of Caligula.

812 years after Christ. During the reign of Charlemagne,

1284, 1329, 1444, 1536, 1633, 1650.

The two writers who have chiefly signalized themselves upon the phænomena of this and the volcanos in the neighbourhood are sir William Hamilton and the abbé Spallanzani. To the former we are chiefly indebted for their history and effects, and to the latter for their possible causes and geognosy. It is from these celebrated writers that we shall deduce the remainder of this article, which we shall divide into two parts.

History and Effects of Volcanos.

Volcanos are peculiar to no climates, and have no necessary connection with any other mountains, but seem to have some with the sea, being generally in its neighbourhood; they frequently throw out matters which belong to the sea, as the relics of fishes, sea-weed, and sometimes sea-water itself. Sir William Hamilton observes in the Phil. Trans. for 1776, that "the operations of Vesuvius are very capricious and uncertain, except that the smoke increases considerably and constantly when the sea is agitated, and the wind blows from that quarter." Volcanic mountains are of all heights; some, as that of Tanna, so low as 450 feet; Vesuvius is 3600 feet high; and Etna, 11000. They in general form lofty spires; and the volcano itself is internally shaped like an inverted cone, placed on a broader basis. This cone is called the crater, or bowl, and through it the lava generally passes, though sometimes it bursts through the sides, and even proceeds occasionally from the bottom of the mountain. Sometimes the crater falls in, and is effaced; sometimes, in extinguished volcanos, it is filled with water. Submarine volcanos have been observed, and from these some islands have derived their origin. Volcanic fires taking place at the bottom of the ocean, would frequently, by the expansive force of the steams which are generated, elevate those parts which were once at the bottom of the deep, and overflow those which were habitable earth. It is conjectured, that subterraneous convulsions operated more powerfully in the early ages of the world than at any later period; and indeed such an hypothesis is supported by the most probable reasoning, since we may well conceive that at the first consolidation of the earth, much heterogeneous matter would be included in the different masses, which might produce more frequent fermentations than at any after periods, when these have been, if we may so express it, purged off by frequent eruptions, and, in many parts, perhaps, rectified and assimilated by slow and secret processes in the bowels of the earth. But history was not cultivated till a very late period, and the most eventful ages of nature have passed unrecorded.

The force of subterraneous fires, or rather of the steam which is generated by them, is so great, that considerable rocks have been projected by Vesuvius to the distance of eight miles. A stone was once thrown from the crater of that volcano twelve miles, and fell upon the marquis of Lauro's house at Nola, which it set on fire. One also, which measured twelve feet in height and forty-five in circumference, was carried in 1767, by the projectile force of the steam, a quarter of a mile from the crater. In an eruption of Etna, a stone, fifteen feet long, was ejected from the crater to the distance of a mile, and buried itself eight feet deep in the ground.

A volcano broke forth in Peru in 1600, accompanied with an earthquake, and the sand and ashes which were ejected covered the fields ninety miles one way, and one hundred and twenty another. Dreadful thunders and lightning were heard and seen for upwards of ninety miles round Araquapa during this eruption, which seemed to denote some connection between the electric matter and these volcanic fires; and this fact is strongly confirmed by the very accurate observations of sir William Hamilton.

Causes and Geognosy of Volcanos.

The interior structure and component parts of volcanos, together with the tremendous agency they possess, and which has produced them, have for ages been an object of philosophical curiosity. Yet, when we consider the danger of attempting to sound them; that the incompact state of the materials, by affording no proper support, may hurry the incautious adventurer into the burning abyss; that the mephitic vapours may produce instantaneous suffocation; or that a sudden explosion may overwhelm him with destruction; we cannot wonder that so few have engaged in an exploit so replete with danger.

We should have remained ignorant to the present hour of the state of this immense natural furnace, had not the spirit or temerity of eight Frenchmen, in the year 1801, enabled them successfully to explore this cavern of destruction. The mouth, or upper base, of the centre of Vesuvius, which is a little inclined to its axis, is represented by these travellers as 5722 feet in circumference. After walking round the aperture of the volcano, in order to choose the most commodious part for descending, M. Dampiene, adjutant commandant, and M. Wickar, a painter, first descended without any accident at the determined point; when, however, they found themselves stopped by an excavation of 50 feet, which it was necessary to pass. Finding it impossible to obtain a fixed support on ashes so movable, and being convinced that the friction of ropes would have destroyed both the point of support and the neighbouring masses, they resolved to return. Some stones at the same moment rolled from the summit, and occasioned a general agitation as they passed; the ground shook under their feet, and they had scarcely quitted it when it disappeared and fell in.

After walking once more round the mouth of the crater, they discovered at length a long declivity, smooth, though steep, which appeared to conduct to the focus. When they had proceeded half-way, amidst a torrent of ashes which rolled down along with them, they found means to fix themselves on the edge of the precipice, twelve feet in height, which it was necessary to pass. With one of the lazaroni, however, they plunged down this precipice; and found themselves on the brink of another, which, however, not being quite so high, they passed with more ease. At length, amidst showers of falling lava, ashes, and stones, they reached the bottom of the crater.

They found the immense furnace still smoking in several places. The bottom of the crater, which from above appeared perfectly smooth, was found, on the contrary, when they reached it, exceedingly rough and uneven. They passed over lava very porous, in general hard, but in some places, and particularly where they entered, still soft, so as even to yield under their feet. The spectacle, however, which most attracted them was the spiracles; which either at the bottom or interior sides, suffer the vapours to escape. These vapours, however, did not appear of a noxious quality. In traversing the crater they perceived a focus half covered by a large mass of pumice stone, and which, from its whole circumference, emitted a strong heat. Reaumur's thermometer, on the summit of Vesuvius, stood at twelve degrees; in the crater it rose to sixteen; placed at one of the spiracles it indicated fifty-four, at another only twenty-two; and at the entrance of the focus it never rose higher than twenty-two degrees.

The volcanic productions in the crater were lava, exceedingly porous, and reduced by the fire in some places to scoria. It was of a dark brown colour in general; and in some places reddish, with a very little white. The substances nearest the spiracles were covered or impregnated with sulphur, which sometimes was in a state of oxygenation. Some basaltic lava was also found, but in a small quantity. The burning focus produced the same results.

On the north side of the crater there were two large fissures, one of which was twenty feet in depth, the other fifteen. They were shaped like an inverted cone, and the matter with which they were covered was similar to the rest of the surface, but they emitted neither smoke nor heat.

The ascent of our adventurers was accomplished with more difficulty, though perhaps with less danger, than the descent. It also occupied a greater space of time; for they could only ascend one at a time after considerable intervals, for fear of burying, under torrents of dust and volcanic matters, those who immediately succeeded.

Both the inside of the crater and the base of many volcanos consist of lava, either entire or decomposed nearly as low as the level of the sea; but they finally rest either on granite, as in Peru, or schistus, as the extinguished volcanos of Hesse and Bohemia, or on limestone, as those of Silesia, mount Vesuvius, &c. No ore is found in these mountains, except that of iron, of which lava contains from twenty to twenty-five parts in the hundred, and some detached fragments of the ores of copper, antimony, and arsenic. Vesuvius ejected, from the year 1779 to 1783 309,658,161, cubic feet of matter of different kinds; we must therefore conclude the seat of these fires to be several miles below the level of the sea; and as iron makes from one-fourth to one-fifth of these ejections, we may infer that the internal parts of the earth abound much in this metal.

One of the best, as well as of the most modern, writers upon this subject is the abbe Spallanzani. In the course of a variety of interesting enquiries upon the spot, he examined minutely into the nature of the gasses poured forth; and observed that the stony substances thrown forth are invariably, when completely heated by the subterraneous fire, rarified, inflated, and rendered cellular, by their elasticity, an effect which is observable in numbers of lavas, glasses, and enamels, ejected during eruptions: and he discovered, in addition, that their violence continually raised the liquified matter from the interior of the craters to their very borders, over which it flowed at each impulse.

He was, at the same time, equally attentive to the nature and force of the fire which acts in the bowels of volcanic mountains; and, in the course of his researches, discovered that the immense mountains of Vesuvius, Ætna, the Eolian Islands, and Ischia, are composed of rocks that have been liquified, and even vitrified, by the violence of the subterraneous conflagration. "What fire," he exclaims, "can we produce equivalent to these effects!" Humble, however, as all experiments appear with our limited means, this venerable philosopher justly thought imperfect knowledge of volcanos preferable to contented ignorance, and, undismayed by the magnitude of the object, proceeded to ascertain, as far as possible, what man is permitted to know on this terrific subject. "I have," he observes, "discovered, that the fire of the glass-furnace will completely refuse the vitrifications, enamels, pumices, scoriæ, and lavas, of these and other volcanic countries. The same will, in like manner, vitrify rocks congenerous to those from which these mountains have originated, by the means of subterranean conflagrations. A less intense fire, on the contrary, produces no such effect on any of these substances. Determined to exercise the most rigorous research, and to ascertain, with the greatest possible precision, the exact degree of heat requisite to produce the above effects, he had recourse to the pyrometer of Wedgwood, which he compliments and praises by saying, nothing could be better adapted for his purpose.

The terrific appearance of a volcano in eruption is so appalling, so grand, and altogether so wonderful, that it is by no means astonishing the world should suppose the vast volumes of smoke, ignited matter, and stones, hurled into the air with inconceivable violence and rapidity, exclusive of the torrents of liquified substances which roll down its sides in solemn and destructive majesty, were caused by more powerful fires than those man has been permitted to kindle; in saying the world, we wish to be understood as meaning those who have seen or read of eruptions without examining the subject further. Of natural philosophers, there were many who coincided with this general opinion; and others have maintained the direct contrary supposition, asserting that volcanic fires are extremely feeble in their operations: following the example of Spallanzani, we shall give the substance of the arguments of each, in order that the reader may draw his own conclusion. It is evident that we must have recourse to the same rule for ascertaining the intensity of volcanic fires which we make use of in measuring the effects of our fires when in activity on bodies immersed in them; and we have already mentioned, that Wedgwood's pyrometer answers for the purpose, as nearly as the nature of the pursuit will permit; but long before the invention of this instrument attempts were made to attain the object in question, particularly by the academicians of Naples, who at the time of the great eruption, in the year 1737, made an experiment on the lava near the Torre del Greco, in a valley where it had accumulated; and though it had ceased its motion several days, yet retained a heat equal to that of red-hot iron. They formed a piece of lead weighing two ounces, in a conical shape, which they placed on the red-hot surface of the lava; the metal became soft in two minutes and a half, and in one minute more it was completely melted: another piece of lead, in every respect exactly similar, was then deposited on a plate of red-hot iron rendered so by burning coals beneath it, when they found that it required six minutes and a half to soften, and seven and a half to liquify it. Water placed on the lava boiled furiously in three minutes, and on burning coals, one minute later. Judging from these facts, the academicians concluded that lava, though exposed to the external air for some days, and consequently far less intensely heated than when first issuing from the crater, was much more fiery in its nature than red hot iron or burning coals: but this conclusion is obviously incorrect; because the plate of iron, being surrounded by air, could not acquire all the heat which was applied to it; neither was it fair to rest an opinion of this description upon a result produced by a means so unequal, as a vast depth of ignited matter opposed to a thin plate of iron.

Prince Cassano, a member of our Royal Society, produced an instance of the violent heat of the lava which issued from Vesuvius to that learned body, which seems more to the purpose than that of the academicians: the torrent of lava alluded to approached a convent of Carmelites; every combustible article was immediately consumed, even before the mass came into contact with it;

and the heat was so excessive, that the glasses standing upon a table in the refectory were instantly reduced to shapeless pieces of that useful material: this circumstance produced an experiment, attended with the same consequences, which was the fastening of a fragment of glass to the end of a long stick, and holding it near the lava, when, at the close of four minutes, it became a mere paste. A fact of the same nature is mentioned by professor Bottis, in his account of the eruption of Vesuvius, in the year 1667. Now, though this effect may be produced by suspending a piece of glass in the air of a glass furnace, it must be admitted, that this being in a state of full activity, and the heat excited to the utmost by every human means, is not a just comparison with a body of lava far removed from the spot where it acquired its heat, which must, without doubt, be at that spot ten times greater; hence it appears decidedly clear, that the internal fire of Vesuvius far exceeds that of our glass-furnaces.

M. Bottis seems to have been one of the first naturalists, who observed the rapidity with which the fire of Vesuvius causes fusion; that gentleman mentions, in his description of the eruption of July 1779, that he saw a small hill, composed of porous lava and scoriæ, inclosing an inconsiderable gulph, that produced a noise like that of oil or fat, in the act of boiling or simmering over a fire; this appearance induced him to examine it, when he found it contained matter in fusion, which immediately heated red hot, and then melted fragments of lava or scoriæ thrown into it. As Spallanzani acknowledges that his efforts to melt similar substances required half an hour, we must admit, that this is another proof of the superior heat of volcanic fires. A still further evidence of their extreme heat is, the great length of time which lavas retain it. In the year 1737, some labourers were employed to remove the lava which had crossed a road, and although a month had elapsed from the period of the eruption, they were compelled to desist, as the heat softened their tools beyond the possibility of using them. Sir William Hamilton also found it very great, and dropping some pieces of wood into the fissures of a mass, situated four miles from the volcano, they immediately took fire; but Spallanzani illustrated this fact more decidedly, by passing a body of lava near the upper crater of Ætna, visibly red hot, even in full day-light, which had flowed from the mountain eleven months before.

It is supposed that the volcanic fires of Iceland are very active and powerful, which is inferred from the incompetency of the blow-pipe to fuse the glass issuing from them. Vallisneri, describing a new volcanic island, which rose from the sea in the year 1707, near Santorine, asserts, that the sea in its vicinity became so violently heated, that vast numbers of fish perished, and were actually boiled; and it is well known that the same cause melted the pitch in the seams of ships' bottoms, and occasioned their leaking: this modern fact is corroborated on the authority of Strabo, who declares, that the sea was observed to boil for four days between Thera and Therasia. The complete fluidity of lava is another convincing proof of the excessive heat prevailing in the centre of volcanos. M. Bottis produces two instances, derived from Vesuvius in 1771 and 1776, which demonstrate that this fiery mass assumes a state of liquidity almost equal to water: the professor mentions four hills to have arisen suddenly in the first case near the aperture whence the lava proceeded, and from three of those in the shape of cones, issued streams of the melted matter, exactly resembling fountains of water. During the eruption of the latter year, fresh lava, rushing from the crater, fell upon that of 1771, and rebounding from it into the air, there congealed in various figures capriciously ramified, and terminating in thin sharp points like needles. A circumstance observed by sir William Hamilton, count de Wilzek, cardinal Herzan, and the archduke Maximilian of Austria, in the year 1775, seems to establish the fact, that the fluidity of the lava has been such in times, as to separate into portions, which being thrown up from the crater, fell again near it in a state so soft, that a guide who assisted in conducting these illustrious visitors, perceiving a fragment, passed a stick through it, and presented it thus to the prince, who ordered both to be deposited in his private museum; this, however, seldom occurs, at least the indefatigable Spallanzani never discovered these fragments flattened or indented, as if they had fallen on some hard substance when in the consistence of paste.

With respect to the rapidity of its motion, this must greatly depend upon the quantity ejected, as well as the intensity of its heat: when an opportunity happens for attentive observation, the lava has been known to rise suddenly to the summit of the crater, and as suddenly overflowing its boundaries, rush down in various rivulets of fire; indeed Bottis compares it to "a liquor which boils in a vessel, and rises and overflows the edges of that vessel from the violence of the heat." The lava from Vesuvius, issuing in 1751, flowed over the space of twenty-eight palms in one minute; in 1754, it proceeded in two branches at the rate of thirty feet in forty-five seconds, and afterwards uniting, at thirty-three feet in fifty seconds: to these facts may be added the testimony of sir William Hamilton, who thought its velocity in 1765, equal to that of the Severn, at the passage near Bristol. It may, however, be necessary to observe, that the fluidity of the matter does not always alone occasion its motion, which may be accelerated by a great descent, or the violent pressure of fresh lava constantly issuing from the source, particularly as lavas are known to harden when actually moving, so as to produce a sound when struck, and to bear stones thrown on their surface; but to place this fact beyond a doubt, sir William Hamilton informs us, that himself and others, following the example of Mr. Jamineau, British consul at Naples, actually crossed a moving mass above fifty feet in breadth; yet even thus circumstanced, those dreadful rivers of fire have been known to reach the sea eighteen, twenty, and even thirty miles from their commencement.

The arguments used to establish an idea that fires excited and maintained by human means exceed those of volcanic origin in force lie in a very small compass indeed; they are derived from observing, that some furnaces "vitrify lavas more decidedly than volcanos, and melt schorls which remain perfect in the former." Dolomieu places this supposition in a clear point of view, in a memoir published by him of basaltes. "I shall again repeat," observes this celebrated French naturalist, "what cannot be too frequently inculcated, that lavas are not vitrifications; their fluidity is similar to that of metals reduced to fusion; it does not change the order and manner of being, of the constituent parts of the lava. When they cease to flow, they resume, like metals, the grain, texture, and all the characters of their primitive base; effects which we cannot produce upon stones in our furnaces, since we know not how to soften them by fire, without changing the manner in which they are aggregated. The fire of volcanos has not that intensity which is supposed, and produces its effects rather by the extension and duration of its action than by its activity."

Arguing upon these various facts, and remarks of his own, leading to the same point, Spallanzani candidly acknowledges, that he had been more than once inclined to believe, that our fires possessed more energy than those of volcanos; a number of experiments, however, induced him to say that "these facts prove, first, that it is not always true that volcanic fires are insufficient for the fusion of schorls; secondly, by the vitrification of the garnets, they confirm the powerful activity of those fires; thirdly, that those fires operate in a manner in some measure unknown to us; since, at the same time that they vitrify the garnets, they leave the base in which they are included in a state perfectly recognizable, notwithstanding that the former are refractory to the fire of the furnace, while the latter is easily fusible." It has been a generally received assertion, that volcanos emit flame during eruption, and that flowing lavas are attended by the same accompaniment of fire; this supposition is erroneous, as may be proved by referring to the works of Serao, father Torre, Bottis, and sir William Hamilton, all of whom will be found to have omitted the observation of flames. The first expressly says of the lavas of Vesuvius, "that when seen by night, at any distance, they emit a light, not shining, like a bright flame, but of a dead kind, like that of red-hot substances which burn without flame;" and the last mentions, that he has "observed upon mount Vesuvius, that soon after a lava has borne down and burned a tree, a bright flame issues from its surface; otherwise I have never seen any flame attending an eruption:" adding, that the light reflected on the smoke, as it rises from the crater, by the raging of the fire in the gulph beneath, is frequently mistaken for flame. Spallanzani confirms the opinion of these accurate observers, and declares he never saw flame in, or proceeding from, any of the craters he examined.

Faujas thought it not improbable that fire united with water may produce some of those combinations of which we know not the origin; he says on this subject, "I almost incline to be of opinion, that the aqueous fluid, raised to a degree of ebullition and incandescence, of which our feeble furnaces can give us no idea, sometimes concurs with the inactive and concentrated fire which exists in the immense volcanic caverns, and that from this concurrence results a multitude of combinations hitherto unknown to us, which take effect on the stones and earths that remain perhaps whole ages in these burning gulphs, where the fire, intent to destroy, has for its adversary the water, which incessantly creates and opposes to it all the forms and modifications of which the matter is susceptible."

It will now be necessary to mention some of the effects of gass in the operations of these fierce internal fires: it is well known that their violent efforts to reach the surface of the liquified masses contained in craters causes it to rise suddenly from the bottom, completely filling their whole circumference, and at length forcing it over the sides in destructive streams, which overwhelm in their passage every object, either natural or artificial. Spallanzani made ten distinct experiments, in order to obtain some idea of the nature and effects of gass as exhibited by volcanos; for this purpose he made use of different lavas, enamels, and glasses, ejected from them, and the consequence was, a conviction that the bubbles and inflations of various dimensions, observable in these substances, are not produced by the action of any permanent gass, "but by that of an aëriform fluid, produced by the excessive attenuation of those same products in consequence of heat." Dr. Priestley made similar experiments, which differed in some degree from those related by the above celebrated Italian naturalist. The doctor fused 4⅕ ounces of lava from Iceland in a sand-stone retort, and obtained twenty measures of air, half of which, at the commencement of the process, was carbonic acid gass, and the remainder, in purity 1.72, extinguished a candle; between the interstices of this lava was a sand, which the operator could not separate from it. Five ounces and a half of Vesuvian lava produced thirty measures of air, with a slight appearance of carbonic acid gass, the rest was azotic gass, from the degree 1.64 to 1.38, with respect to what came last. On cooling, the residue broke the retort by its excessive inflation.

Without entering into an examination of the difference of opinion existing between these philosophers, we shall give an extract from the works of Spallanzani, that fully illustrates this part of our subject; "I shall," he observes, "now proceed to enquire what part this aëriform vapour acts in the eruptions of volcanos. Where it exists in the depths of a volcanic crater, abundantly mixed with a liquid lava violently urged by subterranean conflagrations, I can easily conceive, that by its energetic force it may raise the lava to the top of the crater, and compel it to flow over the sides and form a current. Art can imitate this grand operation of nature on an infinitely less scale. I placed on a glass furnace a cylindrical crucible, one foot high, and two inches and a half in breadth, which I filled half full with one of those volcanic products which most inflate and boil in the fire. After some hours, I observed that the liquid matter began slowly to rise, and afterwards to rise higher, until it at last overflowed the edges of the crucible, forming small streams down its sides, which, when they reached the plane on which the crucible stood, gave origin to small currents, if that plane was at all inclined. When I put more of the same product into the crucible, the currents became larger. If the plane was then taken from the surface, and the small currents, thus produced, examined, they were found full of minute bubbles, as was likewise the matter which remained in the crucible. This curious experiment I made with several glasses and volcanic enamels, as also with a variety of cellular lavas, and always with the same success."

Judging from the result of the above trial, it cannot be doubted that a similar elastic vapour, collecting in vast quantities under the surface of the earth, must, upon meeting with resistance in its passage, produce loud noises resembling thunder, and local tremblings of the surrounding earth, besides forcing its way upwards through super-incumbent lava: other experiments, made by Spallanzani, however, seem to prove that it must be another cause which expels the fiery matter with violence out of craters, as the matrasses he used broke without noise, and without ejecting or scattering the substance, and particularly, as the escape of gasses has been frequently ascertained by the hissing sounds attending eruptions; unfortunately, though those vapours offer themselves to examination, it would be impossible to collect any part of them without exposing the life of the experimentalist to almost certain destruction, we must therefore admit their existence, and conjecture must supply the rest.

It will be recollected that all volcanos, at present in a state of activity, are surrounded by, or situated very near, the sea; hence it appears clear, that the agency of that body is extremely powerful in promoting the violence of their eruptions, by rushing at uncertain intervals, and from unknown causes, through the caverns of the earth, upon the ever-enduring fires there existing; and this supposition is supported by the fact which has been repeatedly observed of the sudden retiring of the sea immediately preceding a violent explosion from a crater, the certain consequence of a rapid diminution of water on the shore. Little need be urged to prove the immediate and vehement separation that takes place upon the collision of fire and water, and of the force of steam thus produced; one instance, however, may be safely cited, which will place this supposed collision in a true light, and is extracted from the fourth volume of the Memoirs of the Academy at Bologna. A bell of enormous dimensions had been ordered to be cast, at Modena, and preparations of the usual description were made under a spacious portico. After the metal had been completely melted, it was led into the mould, situated at a small depth under the pavement, through a small channel; the burning fluid had no sooner entered the mould than a dreadful explosion took place, which resembled in every particular the horrid effects of springing a mine; a deep hole was sunk in the earth, the metal, the mould, and every material of the portico above it, were scattered in the air, and several persons were killed and severely wounded: if such were the immediate consequences of a trifling degree of moisture remaining in the sand which composed the mould, it may be naturally inferred, that a body of water, meeting with subterraneous fires, is capable of producing eruptions and earthquakes. It seems, however, extremely probable from experiments, that this effect principally arises from the insinuation of water under or below the surface of the sides of those fires, as it has been ascertained that water thrown upon fire evaporates without much violence, and yet if the vapour thus generated is confined by superincumbent earth, or rocks, its struggles for a vent must occasion the violent disruption of those parts; the event is different on pouring water on melted tin, which is the only metal that is separated by this means so as to render it a dangerous operation to the experimentalist.

Spallanzani concludes many curious and interesting observations derived from experience, by remarking, "from this series of experiments I think we are authorised to conclude, that when a quantity of water falls on the burning crater of a volcano, it has not the power of producing explosions; but that the latter on the contrary are very violent when the water penetrating below, reaches the conflagration; when suddenly reduced to vapour by the heat, it finds no room for its dilatation; or when it insinuates itself laterally among the liquified matters; of which we have a satisfactory proof in the explosion of the lava violently forced from the containing vessel, on the introduction of water into a cavity made in it."

From what has been already said, a tolerable conception may be formed of the probable causes of volcanic eruptions. It now remains for us to add a concise narrative of their visible phenomena, and for this purpose we find ample materials furnished by Spallanzani, whose ascent of Stromboli deserves every praise for its courage, though we cannot help condemning him for the exercise of very daring temerity. The visit we allude to was made in 1788, when the appearance of the mountain was bifurcated, and the crater situated at some distance from the summits, from both of which the operations within it are distinctly visible, and from those the height of the ejections may be ascertained, with tolerable accuracy. During violent internal agitation the matter appears to ascend half a mile and more, but when the mountain is in actual eruption, the scattered fragments prove, that the impelling force is very greatly increased. After having attentively examined the crater from the summit above alluded to, Spallanzani approached the crater, where he found that the explosions succeeded each other so rapidly, that they might almost be said to occur without any intervals of quiet, but they varied in their force; the matter, in some instances, not rising more than fifty feet, and falling again into the crater, and in others it was elevated half a mile; the sounds, consequently, are proportionably loud, or the reverse, and resemble a hissing noise; the fragments of lava were actually fluid during their progress, which was evident from their globular shape, and becoming hard before they fell upon the sides of the mountain, that form is preserved.

The exhalations exhibited a thick cloud several miles in extent, which were strongly impregnated with sulphur; this cloud was impenetrable by the beams of the sun, and appeared very black in the midst, but white on the edges, and was, in all probability, a mile in depth. The vapour thus floating from the mountain was derived from three distinct sources, though doubtlessly produced by the same cause in the first instance: when an ejection of lava took place, it was always accompanied by a cloud of grey smoke from the crater; to the west of that spot were a number of obscure apertures, each of which sent forth a volume of similar vapour, and to the east, a vast cavern emitted a column at least twelve feet in diameter, extremely black and dense.

"Not satisfied with the observations I had already made," observes Spallanzani, "my curiosity impelled me to attempt further discoveries. From the pointed rock on which I stood, I could only see the edges of the inside of the crater, I considered, therefore, whether it might not be possible to obtain a sight of the lower parts likewise; and, looking round me, I perceived a small cavern hollowed in the rock, very near the gulph of the volcano, into which the rock above prevented the entrance of any burning stones, should they be thrown so far. It was likewise so elevated, that from it the crater was open to my view. I therefore hastened to take my station in this cavity, taking advantage of one of the very short intervals between the eruptions. To my great satisfaction, my expectations were completely fulfilled; I could here look down into the very bowels of the volcano, and truth and nature stood as it were unveiled before me." Thus situated in probable safety, the intrepid Spallanzani saw the following wonders.

The crater he found to be of a circular form, with edges composed of a chaos of sand, scoriæ, and lava; and he imagined the circumference to be about three hundred and forty feet. Similar to all other craters, that of Stromboli assumes the shape of a truncated inverted cone, the sides of which, from east to south, were gently inclined, but the remainder very steep. Many parts of this internal descent appeared to be incrusted with yellow substances, which he supposed to be the muriat of ammonia (sal ammoniac) or sulphur.

Fluid lava, resembling melted brass, red-hot, and liquid, filled the crater to a certain height, and this matter appeared to be influenced by two distinct impelling powers, the one whirling and agitated, and the other upwards; at times it rose rapidly, and when the surface had reached within thirty feet of the edges of the crater, an explosion took place like a short clap of thunder, and at the same instant, a portion of the lava was hurled with inconceivable swiftness into the air, which was as instantaneously separated into numerous fragments, and those were accompanied by a copious discharge of sand, ashes, and smoke. Immediately before the eruption occurred, the lava appeared inflated, and large bubbles, some several feet in diameter, rose and burst, the detonation followed, and the lava sunk, till a repetition of this operation was commenced; during the rising, a sound issued from the crater like that produced by a liquid boiling violently in a cauldron. Many of the eruptions were so inconsiderable, that their effect could not be visible at a small distance from the mountain; in those the fragments constantly fell back into the gulph, with a sound, on their collision with the great mass of matter, similar to that produced by water when forcibly struck with flat staves; in the greater explosions, many of the pieces returned into the crater, some falling on the sides and rolling down, but many descended a precipice, formed by one side of the mountain, to the sea.

The pieces of scoriaceous lava, as they moved in the air, retained their red-hot appearance, though the sun shone clear; many of them came in contact during their progress, and, according to the degree of heat they possessed, they adhered, or were broken. The smoke seemed to be foreign to the lava, as none attended the fragments thrown into the air, and that which escaped passed through fissures, and at the moment the lava burst. According to Spallanzani's conjectures, the crater may be about twenty-five or thirty feet in depth, when the lava is raised to its greatest height, and upon its subsiding, forty or fifty. There are no visible marks of its ever having overflowed so as to descend like those of Ætna and Vesuvius.

"Though the ejections of the larger and heavier stones have short intermissions, those of the lesser and lighter have scarcely any. Did not the eye perceive how those showers of stones originate, it would be supposed that they fell from the sky: the noise of the more violent eruptions, resembling that of thunder, and the darkness occasioned by the mounting cloud of smoke, present the image of a tempest."

While this naturalist was employed in intense observation, the eruption suddenly ceased, the lava sunk to a greater depth than usual, and remained thus depressed; the fierce light subsided, and at the same instant, the various streams of smoke, issuing before silently from the apertures west of the crater, began to rush forth with a loud hissing noise, and the apertures to shine with a bright colour of fire. "I know nothing," says Spallanzani, "to which the sound produced by the issuing of these fumes can be more properly compared than the blowing of large bellows into a furnace by which metals are melted; such as I have seen at Zalatna, in Transylvania, and Schemnitz and Kremnitz, in Hungary, except that those volcanic bellows roared a hundred times louder, and almost deafened the ear."

Volcano, one of the most considerable of the Lipari islands, in the Mediterranean, lying S. of the island of Lipari, from which it is separated by a deep channel, a mile and a half broad. It is 12 miles in circumference, and is a volcano, in the form of a broken cone, but now emits smoke only. Volcano, as well as all the rest of these islands, is supposed to have been originally the work of subterranean fire. Of the production of this island, in particular, Fazzello says that it happened in the early time of the Roman republic, and is recorded by Pliny and others.

VOLE. *s.* (*vole*, French.) A deal at cards, that draws the whole tricks (*Swift*).

VO'LERY. *s.* (*volerie*, French.) A flight of birds.

Sometimes the word is used to signify a bird-cage large enough for the birds to fly up and down in it.

VOLGA, a river of Russia, which forms part of the boundary between Europe and Asia. It has its source in two small lakes, in the government of Pleskof, about 80 miles W. of Tver, begins to be navigable a few miles above that town, and is there augmented by the influx of the Tverza. It waters some of the finest provinces in the Russian empire, passes by Yaroslaf, Kostroma, Nishnei Novogorod, Kasan, Simbirsk, Saratof, Tzaritzin, and Astracan, and enters the Caspian sea by several mouths. This is supposed to be the largest river in Europe; and by means of it, the river Tverza, and a canal thence to the Neva, there is a navigable communication between the Caspian sea and the Baltic.

VOLHYNIA, a palatinate of Russian Poland, 220 miles long and 130 broad; bounded on the N. by Polesia, E. by Kiof, S. by Podolia, and W. by Austrian Poland. It consists chiefly of fertile plains watered by a great number of rivers. Lucko is the capital.

VOLITA'TION. *s.* (*volito*, Latin.) The act or power of flying (*Brown*).

VOLI'TION. *s.* (*volitio*, Latin.) The act of willing; the power of choice exerted (*Locke*).

VO'LITIVE. *a.* Having the power to will (*Hale*).

VOLKAMERIA, in botany, a genus of the class didynamia, order angiospermia. Calyx five-cleft; corol with all the divisions pointing one way; drupe two-seeded; nuts two-celled.

Eight species. The two following are cultivated.

1. V. aculeata. Prickly volkameria.

2. V. inermis. Ovate-leaved, smooth volkameria.

Both are shrubs, rising six or seven feet, with white flowers, void of odour.

VO'LLEY. *s.* (*volée*, French.) 1. A flight of shot (*Raleigh*). 2. A burst; an emission of many at once (*Shakspeare*).

To Vo'lley. *v. n.* To throw out (*Shakspeare*).

VO'LLIED. *a.* (from *volley*.) Disploded; discharged with a volley (*Philips*).

VOLO, a town of European Turkey, in Janna, with a citadel and a fort. It was taken, and almost ruined, in 1655, by the Venetians. It is seated on a gulf of the same name, where there is a good harbour, 30 miles S.E. of Larissa. Lon. 22. 55 E. Lat. 39. 21 N.

VOLODIMIR, or Vladimir, a government of Russia, formerly a province of the government of Moscow. The soil is extremely fertile, and in the forests are innumerable swarms of bees.

Volodimir, or Vladimir, a town of Russia, capital of a government of the same name. It is seated on the Kliasma, 110 miles E. by N. of Moscow. Lon. 40. 28 E. Lat. 55. 53 N.

VOLOGDA, a government of Russia, divided into the two provinces of Vologda and Ustiug. It is a marshy country, full of forests, lakes, and rivers, and noted for its fine wool.

Vologda, a town of Russia, capital of a province of the same name, and the see of an archbishop. It has a magnificent cathedral, several churches, a castle, and a fortress. The principal trade is in hemp, matting, leather, and tallow. It is seated in a marsh, on the river Vologda, which flows into the Sukhona, 257 miles N. by E. of Moscow. Lon. 39. 46 E. Lat. 59. 20 N.

VOLSCENS, a Latin chief, who discovered Nisus and Euryalus returning from the Rutulian camp loaded with spoils. He killed Euryalus, and was himself immediately stabbed by Nisus.

VOLSCI or Volci, a people of Latium, whose territories were bounded on the south by the Tyrrhene sea, north by the country of the Hernici and Marsi, west by the Latins and Rutulians, and east by Campania. Ancus king of Rome made war against them, and in the time of the republic they became formidable enemies, till they were at last conquered with the rest of the Latins.

VOLT. See Volte.

VOLTAIRE (Marie Francis Arouet de), a French writer of celebrity, born at Paris, 20th Feb. 1694. He was so feeble at his birth, that it was long doubtful whether he could be reared. From his earliest years he evinced superior powers, so that he said, he wrote verses before he left his cradle. He was educated in the college of Lewis the Great, where he made such progress, that Ninon de l'Enclos left him 2000 livres to buy him a library. He was intended for the law; but the muses had greater charms, and among the courtiers of Lewis XIV. he acquired those graces of delicate humour and easy expression by which he was so much distinguished. His fondness for satire procured his imprisonment in the Bastille for one year, from which he was liberated by Orleans, who was pleased with the representation of Œdipus, the first tragedy which he wrote, 1718. Some of his plays were afterwards unsuccessful, and the poet, indignant at the censures of his countrymen, left Paris, and came to England, where he was noticed by George I. and queen Caroline, under whose patronage he published his Henriade. Flattered with this and with the handsome property which he had realized by the liberality of his subscribers, he in 1728 returned to Paris, and while he laboured by commerce to improve his income, he devoted the best part of his time to literary pursuits. His Brutus, the most nervous of his tragedies, appeared in 1730, and was soon succeeded by Zara, the most pathetic of his pieces. His lettres philosophiques at this time gave such offence for their indecent witticisms, that they were burnt by a decree of the parliament, and the author withdrew to the seat of madame de Chatelet. His Alzire, Mahomet, and Merope, produced soon after, placed him at the head of the dramatic poets of France, and introduced him to the court as the favourite of madame Pompadour. He was appointed gentleman of the bedchamber to the king, and historiographer of France, and in 1746 had a seat in the academy of sciences. Though thus popular, he yet found a host of rivals, and to fly from them, he retired to Berlin. The confidence of the Prussian monarch, and a liberal pension of 22,000 livres, for a while commanded his attachment, but a quarrel with Maupertuis, who was at the head of the Berlin academy, and that spirit of independence which always marked his conduct, soon after brought on his disgrace, and after being dispossessed of a volume of royal verses, which he wished to carry away, he left the kingdom. The publication of an obscene poem at that time rendered his return to Paris dangerous, and therefore after staying one year at Colwar, he purchased an estate near Geneva, where he fixed his residence. This place he soon abandoned for Ferney, on the borders of France, where he established a colony of industrious artisans, and received in progress of time the homage and the respect of the learned of Europe. He received the adulation of the great, and the liberal presents of crowned heads, especially of the king of Prussia, and of the empress Catherine, and continued long to direct the taste and the literature of the world. At last, in 1778, he ventured to exchange the tranquillity of Ferney for the capital, and surrounded with glory and with wealth, he appeared at Paris, where he was received with unusual honours by all the learned bodies, and crowned with the poetic wreath in the theatre, amidst applauding thousands. These honours, and the complimentary visits of ceremony which they produced, were, however, too burdensome for his great age and change of regimen, and continued fatigue inflamed his blood and brought on a hæmorrhage. As if foreboding his end, he declared when he reached Paris, that he came to seek glory and death, and when presented by an artist with a picture of his triumph, he observed, "a tomb would be fitter for me than a triumph." When unable to enjoy his usual rest, and unable to bear his reflections, he took a large dose of opium, which deprived him of his senses, and he died soon after, 30th May, 1778. He was buried at Sellieres, between Nogent and Troyes, and his remains were, during the revolution, removed to the church of St. Genevieve, at Paris, by a decree of the convention. Voltaire, as the leader of a new sect, has caused a revolution in wit and morals, and whilst he has often exerted his powerful talents to promote the cause of reason and of humanity, to inspire princes with toleration, and with a horror for war, he has too often exerted himself in extending principles of irreligion, anarchy, and libertinism. Ever inconstant, he was the free thinker at London, the Cartesian at Versailles, the pretended Christian at Nancy, and the undisguised infidel at Berlin. From the high character of the moralist, he frequently descended into the buffoon, from the philosopher he became an enthusiast, from mildness he passed to passion, from flattery to satire, from the love of money to the love of luxury, from the modesty of a wise man to the vanity of an impious wit. It has been said, that his physiognomy partook of that of the eagle and of the ape, and his character exhibited him occasionally with sensibility, but void of affection, voluptuous, but without passions, open without sincerity, and liberal without generosity. As a man of letters he must stand on very high ground for versality of talent, for brilliancy of imagination, for astonishing ease, for exquisite taste, and for vast extent of knowledge. He wrote, besides, several tragedies, the last of which was Irene—several comedies, the best of which are, l'indiscret, l'enfant prodigue, and Nanine—operas—fugitive pieces—essai sur l'histoire generale—les siecles de Louis XIV. and Louis XV.—history of Charles XII.—of the czar Peter—melanges de literature—dictionaire philosophique—philosophie de l'histoire, and other works of impious tendency—theatre of Peter and Th. Corneille, &c. The most correct edition of his works is that of Geneva, in 30 vols. 4to. and the most copious, that of Basil, in 71 vols. 8vo.

Condorcet records of Voltaire, First, that he conceived the design of overturning the Christian religion, and that by his own hand. "I am wearied," said he, "of hearing it repeated that twelve men were sufficient to establish Christianity; and I wish to prove that there needs but one to destroy it." Secondly, that in pursuit of this object, he was threatened with a prosecution; to avoid which he received the sacrament, and publicly declared his respect for the church, and his disdain for those who had called in question his Christianity! Thirdly, that in his last illness, in Paris, being desirous of obtaining what is called Christian burial, he sent for a priest, to whom he declared that he "died in the catholic faith in which he was born." Fourthly, that another priest (curate of the parish) troubled him with questions. Among other things he asked, "Do you believe the divinity of Jesus Christ?" "In the name of God, sir," replied Voltaire, "speak to me no more of that man, but let me die in peace." How different from the language of David, Psalm xvii. 15.

For an account of Voltaire's shameful interpolations, &c. in his edition of Pascal's Thoughts, see Pascal.

VOLTAISM, that curious and important branch of electricity, which depends upon metallic combinations. For the earliest insulated facts which paved the way to this science, we are indebted to professor Galvani; for their explanation and application to purposes of real utility, we are indebted to professor Volta; and for the grand and simple law of nature by which they operate in the production of effects, we are indebted to sir Humphrey Davy.

About the year 1790, professor Galvani of Bologna discovered accidentally, that the crural nerve of a frog cut up for soup for his wife's dinner, contracted and became convulsed upon the application of a knife wetted with water; as the story is told by other writers, he perceived whilst he was one day dissecting a frog in a room where some of his friends were amusing themselves with electrical experiments, that the body of the animal was shaken with a violent convulsion, in consequence of a spark being drawn from the conductor of the machine at the time he was touching one of its nerves. Astonished at the phenomenon, and at first imagining that it might be owing to his having wounded the nerve, he pricked it with the point of his knife, to assure himself whether or not this was the case, but no motion of the frog's body was produced. He now touched the nerve with the instrument as at first, and directed a spark to be taken at the same time from the machine, on which the contractions were renewed. Upon a third trial, the animal remained motionless; but observing that he held his knife by the handle, which was made of ivory, he changed it for a metallic one, and immediately the movements took place, which never was the case when he used an electric substance.

After having made a great many similar experiments with the electrical machine, he resolved to prosecute the subject with atmospheric electricity. With this view he raised a conductor on the roof of his house, from which he brought an iron wire into his room. To this he attached metal conductors, connected with the nerves of the animals destined to be the subjects of his experiments; and to their legs he fastened wires which reached the floor. These experiments were not confined to frogs alone. Different animals, both of cold and warm blood, were subjected to them; and in all of them considerable movements were excited whenever it lightened. These preceded thunder, and corresponded with its intensity and repetition; and even when no lightning appeared, the movements took place when any stormy cloud passed over the apparatus. That all these appearances were produced by the electric fluid was obvious.

Having soon after this suspended some frogs from the iron palisades which surrounded his garden, by means of metallic hooks fixed in the spines of their backs, he observed that their muscles contracted frequently and involuntarily, as if from a shock of electricity. Not doubting that the contractions depended on the electric fluid, he at first suspected that they were connected with changes in the state of the atmosphere. He soon found, however, that this was not the case; and having varied, in many different ways, the circumstances in which the frogs were placed, he at length discovered that he could produce the movements at pleasure by touching the animals with two different metals, which, at the same time, touched one another either immediately or by the intervention of some other substance capable of conducting electricity.

All the experiments that have yet been made may be reduced to the following, which will give the otherwise uninformed reader a precise notion of the subject.

Lay bare about an inch of a great nerve, leading to any limb or muscle. Let that end of the bared part which is farthest from the limb be in close contact with a bit of zinc. Touch the zinc with a bit of silver, while another part of the silver touches, either the naked nerve, if not dry, or, whether it be dry or not, the limb or muscle to which it leads. Violent contractions are produced in the limb or muscle, but not in any muscle on the other side of the zinc.

Or, touch the bared nerve with a piece of zinc, and touch, with a piece of silver, either the bared nerve, or the limb; no convulsion is observed, till the zinc and silver are also made to touch each other.

A fact so new, illustrated by many experiments and much ingenious reasoning, which professor Galvani soon published, could not fail to attract the attention of physiologists all over Europe; and the result of a vast number of experiments, equally cruel and surprising, has been from time to time laid before the public by Valli, Fowler, Monro, Volta, Humbolt, and others.

Frogs, unhappily for themselves, have been found the most convenient subjects for these experiments, as they retain their muscular irritability and susceptibility of the galvanic influence very long. Many hours after they have been decapitated, or have had their brain and spinal marrow destroyed, strong convulsions can be produced in them by the application of the metals. A leg separated from the body will often continue capable of excitement for several days. Nay, very distinct movements have been produced in frogs pretty far advanced in the process of putrefaction. Different kinds of fishes, and many other animals, both of cold and warm blood, have been subjected to similar experiments, and have exhibited the same phenomena; but the warm blooded animals lose their susceptibility of galvanism, as of every other stimulus, very soon after death.

Almost any two metals will produce the movements; but, it is believed, the most powerful are the following, in the order in which they are here placed: 1. Zinc; 2. Tin; 3. Lead; in conjunction with, 1. Gold; 2. Silver; 3. Molybdena; 4. Steel; 5. Copper. Upon this point, however, authors are not perfectly agreed.

The process by which these singular phenomena are produced consists in effecting, by the use of the exciting apparatus, a mutual communication between any two points of contact, more or less distant from one another, in a system of nervous and muscular organs. The sphere of this mutual communication may be regarded as a complete circle, divided into two parts. That part of it which consists of the organs of the animal under the experiment has been called the *animal arc*; that which is formed by the galvanic instruments has been called *the excitatory arc*. The latter usually consists of more pieces than one; of which some are named *stays*, *braces*, &c. others *communicators*, from their respective uses.

Besides the effects thus produced on the muscles, the impressions made on the organs of sense are equally remarkable. And as the experiments illustrating them may be easily repeated, we shall specify some of the most interesting. For instance, if a thin plate of zinc be placed on the upper surface of the tongue, and a half-crown, shilling, or silver tea-spoon, be laid on the lower surface of the tongue, and both metals after a short space of time be brought into contact, a peculiar sensation, similar to taste, will be perceived at the moment when the mutual touch happens. If the silver be put beneath, and the zinc upon the tongue, the same sensation will arise, but in a weaker degree, resembling diluted ammoniac, from which it in all probability derives its origin.

If a silver probe be introduced as far as convenient into one of the nostrils, and then be brought into contact with a piece of zinc placed on the tongue, a sensation not unlike a strong flash of light will be produced in the corresponding eye, at the instant of contact. A similar perception will result, both at the moment of contact and at that of separation, if one of the metals be applied as high as possible between the gums and upper lip, and the other in a similar situation with the under lip, or even under the tongue.—Lastly, when a probe or rod of zinc, and another of silver, are introduced as far back as possible into the roof of the mouth, the irritations produced by bringing the external ends into contact, are very powerful; and that caused by the zinc is similar in taste to the sensation arising from its application to the tongue.

No method has hitherto been discovered of applying the Galvanic influence in such a manner as to affect the senses of smell, hearing, and touch; though several eminent philosophers have carefully investigated the subject. Nor are the causes of these phenomena clearly ascertained; Galvani and many of his followers supposing them to depend on the electric fluid, while others attribute them to the influence of various physical agents.

Mr. Creve, surgeon in Wurtzburg, had an opportunity of observing the irritation on the leg of a boy, which had been amputated far above the knee in the hospital of that city. Immediately after the amputation, Mr. Creve laid bare the crural nerve *(kiekehlnerven)*, and surrounded it with a slip of tinfoil. He touched at once the tinfoil and the nerve with a French crownpiece. In that instant the most violent convulsions took place in the leg both above and below the knee. The remainder of the thighbone bent with force toward the calf; the foot was more bent than extended. All these motions were made with much force and rapidity. None were produced when the tinfoil was taken away, or when a steel pincer was used in place of a piece of silver, or when the tin or silver was covered with blood; but they were renewed when these obstacles were removed. These phenomena continued till 38 minutes after the amputation, when the limb became cold.

Dr. Christopher Heinrich Pfaff (in Dissertatione de Electricitate Animali, Stutgardt, 1793: see also Gren's Journal der Physk, T. viii. p. 196, &c.) has classed the phenomena of muscular contraction in a very orderly and perspicuous manner.

The general form of his experiments is the same with that which we have already described; but the following varieties were observed:

The nerve being coated with tinfoil, it was always observed that the contractions were stronger when the silver first touched the muscle, and then the coating. If it touched the coating first the effects were always, and very sensibly, weaker.

They were still stronger when the silver did not touch the muscle at all, but only the nerve and its coating.

When the contractions were weaker at the beginning, they also ceased sooner.

No contraction ensued from touching the coating only, or the nerve only, or the muscle only, with the silver.

Continuing the contact did not occasion any repetition of the contractions, except in some cases, where the silver was drawn along different parts of the coating, while its other end remained in contact with the nerve.

The contractions took place only in the muscles to which the nerve led.

Their strength and duration were greater when the surfaces of contact were greater, and when the two metals touched each other in points or sharp edges.

A ligature, with a silk thread below the coating (that is, between the coating and the muscle, or part of the nerve touched by the silver), prevented all contraction; but not if the ligature was between the coating and the brain. If the nerve was cut through below the coating, and the parts separated a quarter of an inch, no contraction followed by touching the coating and the nerve or muscle: but it took place, if the parts were brought into contact; or even if a piece of any other nerve was put between the parts.

If a considerable part of a bared nerve was insulated and coated, partly with tinfoil and partly with silver, contractions were produced in the muscle to which it led whenever the two metals were brought into contact.

If one crural nerve be coated with tin, and the other with silver, contractions are produced in both legs by bringing the metals into contact.

If the nerve be dry under the coating, or when the silver touches it, or in both places, we have no contractions; but they begin as soon as we moisten the nerve.

Dr. Pfaff infers from these phenomena, that the nerve alone is subject to the irritation produced by the two metals.

If the prepared frog be immersed in water, so that the coating touches the water, contractions are produced by touching the coating above water with the silver, while another part of the silver touches the nerve, or the muscle, or even dips pretty deep in the water.

No such thing happens in oil; or at best, the contractions are very slight.

Pfaff could not produce contractions without employing two metals, or a metal and charcoal.

A very thin covering of muscular flesh on the nerve did not altogether prevent the contractions, and in many cases did not sensibly diminish them.

If a piece of silver be laid on the muscles of the breast or belly, and be brought into contact with the tin coating on the lumbal region, only the muscles of the breast or belly are affected, but not those of the legs.

Pfaff observes, that the involuntary muscles are not affected by galvanism; and refers for convincing proofs to a dissertation by Dr. Ludwig, shewing that the heart is not furnished with nerves. (Scriptor. neurolog. minor. select. vol. ii.)

Professor Aldani, the nephew of Galvani, has pursued the interesting subject with great zeal and success. Early in the year 1803 the professor was in England, and exhibited several very curious galvanic experiments. Among other important facts, it was decisively shewn,

1. That a vital attraction subsists between a nerve and muscle: for the suspended sciatic nerves of a frog, after detaching the spine, being brought near the intercostal muscles of a dog, while the assistant who held the frog did, with his other hand, touch the muscles of the thigh of the dog (thus forming a circle); in this situation, the nerves suspended approached, and came into contact with the muscle, as evidently as a silken thread is attracted by sealing-wax.

2. The heart of a rabbit was excited to action in a little time after the animal was killed; but vitality disappeared much sooner than in the other muscles: so that this organ is the *primum*, and not, as Harvey asserted, the *ultimum moriens*. The lungs, liver, and spleen could not be excited to action, even immediately after the animal was killed.

3. The most important fact of all was that of exciting contractions by making a circle of nerves and muscles of different animals, without any metallic exciter or conductors.

4. The head of an ox, recently decapitated, exhibited astonishing effects: for, the tongue being drawn out by a hook fixed into it, on applying the exciters, in spite of the strength of the assistant, the tongue was retracted, so as to detach itself by tearing itself from the hook: at the same time a loud noise issued from the mouth by the absorption of air, attended by violent contortions of the whole head and eyes.

Aldani also availed himself of the opportunity afforded by the execution of Forster on the 17th of January, for the murder of his wife and child, to repeat his galvanic experiments. A liberal grant had been made him of the use of that subject, by Mr. Keate, surgeon to the king, and master of the college of surgeons, who was himself present on this occasion. The result of this experiment promises great advantages to the interests of humanity, especially in cases of apparent death by drowning, and other cases of asphyxia. These gentlemen, we understand, found that the corpse, by means of galvanism, was made to exhibit very powerful muscular contractions before dissection, and that afterwards these contractions continued for seven hours and a half. On the first application of the process to the face, the jaw of the deceased criminal began to quiver, and the adjoining muscles were horribly contorted, and one eye was actually opened. In the subsequent part of the process, the right hand was raised and clenched, and the legs and thighs were set in motion. It appeared, to the uninformed part of the by-standers, as if the wretched man was on the eve of being restored to life.

A variety of similar experiments were pursued under a great multiplicity of forms by different physiologists and philosophers in our own country, and especially by Dr. Fowler, whose essay on this subject was published in 1799; the actions produced were, from the first, ascribed to a principle of electricity, and the incipient science, thus limited to loose and general experiments on the animal frame, was denominated after its earliest discoverer, galvanism.

The principle, however, upon which the electric power acted was misunderstood; nor were any means as yet devised by which the new power could be accumulated to any definite extent, or made applicable to any useful purposes.

Galvani explained the phenomenon by conceiving the muscles to resemble a charged Leyden phial, having electricity accumulated in the inside, while the outside was minus. The nerves he conceived to be connected with the inside: when it was united with the outside by conductors, the surplus electricity was discharged, and hence the motions of the limb.

M. Volta, professor of natural philosophy at Como in the Milanese, soon discovered, however, that the convulsions were produced by a different operation of the electric principle, in reality by merely touching two different parts of the same nerve by two different metals, and thus making a circuit of the three substances, of which the part of the nerve selected for the purpose formed the middle: and pursuing this simple but beautiful law, he soon afterwards perceived that the two distinct metals alone had an action upon each other when brought into contact, but that the action was considerably increased by the interposition of a third substance of a different nature. The hypothesis of Galvani was hereby completely destroyed, and a foundation laid for that wonderful electric column which has been called the galvanic, or more correctly the voltaic pile, which, by the simple means of multiplying plates of two different kinds of metal, with an interposition of a plate of some other substance between each, produces such an accumulation of electric power, and, when the force of the opposite ends is brought into approximation by means of a flexible wire, or other conductor, attached to each end, such an exertion of this power as to become one of the most if not altogether the most energetic agents in chemistry. And we now advance to the second and most important stage of this new branch of natural science; for which the world is entirely indebted to the penetrating genius of M. Volta, and the curious facts and phenomena of which have hence been universally denominated voltaism.

M. Volta commenced his experiments in 1793, and it was seven years before he rendered his pile sufficiently satisfactory and perfect to usher its description and powers before the public. This, however, he accomplished in 1800; at which time he communicated a particular account of it to the Royal Society, through the medium of sir Joseph Banks, who published this valuable paper in the latter part of their Transactions for that year. His apparatus, as there described, consists of a number of copper or silver plates (which last are preferable), together with an equal number of plates composed of tin, or still better of zinc, and a similar number of pieces of card, leather, or woollen cloth, the last of which substances appears to be the most suitable. These last should be well soaked in water saturated with common salt, muriat of ammonia, or more effectually, with nitre.—The silver or copper may be pieces of money, and the plates of zinc may be cast of the same size. A pile is then to be formed, by placing a piece of silver on a corresponding one of zinc, and on them a piece of wet cloth or card: which is to be repeated alternately, till the number required be arranged in regular succession. But, as the pieces are apt to tumble down, if their numbers be considerable, unless properly secured, it will be advisable to support them by means of three rods of glass, or baked wood, fixed into a flat wooden pedestal, and touching the pieces of metal at three equi-distant points. Upon these rods may be made to slide a small circular piece of wood, perforated with three holes, which will serve to keep the top of the pile firm, and the different layers in close contact. The moistened pieces should likewise be somewhat smaller than those of metal, and gently squeezed before they are applied, to prevent the superfluous moisture from insinuating itself between the pieces of metal. Thus constructed, the apparatus will afford a perpetual current of the electric fluid, or voltaic influence, through any conductor that communicates between the uppermost and lowest plate; and, if one hand be applied to the latter, and the other to the highest metal, a shock will be perceived, which may be repeated as often as the contact is renewed. This shock greatly resembles that given by the torpedo, or gymnotus electricus: and, according to the larger size of the metallic plates, the shock will be proportionably stronger. The intensity of the charge, however, is so low, that it cannot penetrate the dry skin; it will therefore be necessary to wet both hands, and to grasp a piece of metal in each, in order to produce the desired effect: its power may be considerably increased, both by an elevation of temperature, and by augmenting the number of pieces that compose the pile. Thus, 20 pieces of each will emit a shock, that is very perceptible in the arms; if 100 be employed, a very severe but tremulous and continued sensation will extend even to the shoulders; and, if the surface of the skin be broken, the action of the voltaic influence will be uncommonly painful.

The sensation of a flash, or shock with this apparatus, does not materially differ from that produced by two simple plates; but it may be effected in various ways, especially if one or both hands be applied in a wet state to the lowest plate of the pile; or any part of the face be brought in contact with a wire communicating with the top piece. Further, if a wire be held between the teeth, so as to rest upon the tongue, that organ, as well as the lips, will become convulsed, the flash will appear before the eye, and a very pungent taste will be perceived in the mouth.

When a metallic wire, having a bit of well-burnt charcoal at its extremity, is made to connect the two extremities of the pile, a spark will be perceived, or the point of the charcoal will become ignited.

Various other modes of constructing this apparatus have been adopted, some of which are much superior in point of convenience. One mode is by soldering the plates of zinc and copper together, and by cementing them into troughs of baked wood, covered with cement in the regular order, so as to form cells to be filled with the fluid menstruum, each surface of zinc being opposite to a surface of copper; and this combination is very simple and easy of application. Another form is that of introducing plates of copper and zinc, fastened together by a slip of copper, into a trough of porcelain, containing a number of cells corresponding to the number of the series. The different series may be introduced separately into the troughs and taken out without the necessity of changing the fluid; or they may be attached to a piece of baked wood (and when the number is not very large) introduced into the cells, or taken out together.

Similar polar electrical arrangements to those formed by zinc and copper may be made by various alternations of conducting and imperfect conducting substances: but for the accumulation of the power, the series must consist of three substances or more, and one, at least, must be a conductor. Silver or copper when brought in contact with a solution of a compound of sulphur and potash, at one extremity, and in contact with water or a solution of nitric acid at the other extremity, some saline solution being between the sulphuretted and the acid solutions, forms an element of a powerful combination, which will give shocks when fifty are put together. The order is copper, cloth of the same size moistened with solution of nitric acid, cloth moistened in the solution of common salt, cloth moistened in the solution of the compound of sulphur, copper, and so on: the specific gravities of the solutions should be in the order in which they are arranged, to prevent the mixture of the acid and sulphuretted solution; that is, the heaviest solution should be placed lowest.

For these and various other progressive discoveries we are chiefly indebted to sir Humphrey Davy; as we are altogether for the great discovery respecting the agency of voltaism, which was published in the Philosophical Transactions, in a paper which gained the prize proposed on voltaism by the French emperor. This discovery may be expressed in the following sentence: "The voltaic energy has the property of decomposing all compound substances (supposing the battery sufficiently powerful) when the constituents range themselves round the wires, passing from the two extremities of the battery, according to the following law: oxygen and acids arrange themselves round the positive wire; hydrogen, alkalies, earths, and metals, round the negative wire." From this very important discovery sir Humphrey drew several very plausible inferences. Oxygen and acids, since they are attracted towards the positive wire, are naturally negative; while, on the other hand, hydrogen, alkalies, and metals, being attracted to the negative wire, are naturally positive. When two substances are chemically combined, they are in different states of electricity; and the more completely opposite these states, the more intimately they are united. To separate the two constituents of bodies from each other, we have only to bring them to the same electrical state; and this is the effect which voltaism produces. Hence, chemical affinity is nothing else than the attraction which exists between bodies in different states of electricity. The decomposition of the fixed alkalies, of the alkaline earths and boracic acid, soon after discovered by the same celebrated chemist, was the natural consequence of his original discovery. These, though very striking and important, are not to be compared, in point of value, to his original discovery of the decomposing power of voltaism, which has made us acquainted with a new energy in nature, and put into our possession a much more efficient chemical agent than any with which we were before acquainted. This is the discovery which does so much honour to sir Humphrey Davy, and has put him on a level with the small number of individuals who have been fortunate enough to lay open to the world a new law of nature.

It has been doubted by many persons, whether the voltaic and electrical energy were the same: but thousands of experiments might be offered to prove them to be such. M. de Luc's very simple aerial electroscope, or electrical column, as he calls it, may be adverted to, as sufficient of itself to establish this fact. This column consists of zinc-plates and Dutch gilt-paper, in regular succession, like the metallic plates of the voltaic pile, the groups being from one thousand to ten thousand. When two of these columns are placed horizontally, the one insulated, and the other communicating with the ground, each being terminated with a small bell, and a small brass ball is suspended between the two bells by a silken thread, the ball, by the mere influence of the electricity contained in the atmosphere, will chime, by striking alternately from column to column, and consequently from bell to bell, sometimes more or less rapidly, and sometimes more or less loudly, and sometimes scarcely at all, according to the state and proportion of the electric aura; and the instrument, which is a genuine voltaic pile, not only proves the identity of the electric and voltaic power, but may be conveniently employed as a measurer of the electricity which the atmosphere contains. It should be observed, however, that as there are no fluids known, except such as contain water, that are capable of being made the medium of connexion between the metals, or metal of the voltaic apparatus, the effect in this, and in all similar instances, is resolved by sir Humphrey Davy into some small quantity of moisture, or water still existing in the substances employed, which he asserts will not act if each of the substances be made perfectly dry.

The first distinct experiment upon the igniting powers of large voltaic plates was performed by MM. Fourcroy, Vauquelin, and Thenard; but a much grander combination for exhibiting the effects of extensive surface was constructed by Mr. Children, and consists of a battery of twenty double plates four feet by two; of which the whole surfaces are exposed, in a wooden trough, in cells covered with cement, to the action of diluted acids.

The most powerful combination, however, that exists, in which numbers of alternations is combined with extent of surface, is that constructed by the subscriptions of a few zealous cultivators and patrons of science, in the laboratory of the Royal Institution. It consists of two hundred instruments, connected together in regular order, each composed of ten double plates, arranged in cells of porcelain, and containing in each plate thirty-two square inches; so that the whole number of double plates is 2000, and the whole surface 128,000 square inches. This battery, when the cells were filled with sixty parts of water mixed with one part of nitric acid, and one part of the sulphuric acid, afforded a series of brilliant and impressive effects. When pieces of charcoal about an inch long and one-sixth of an inch in diameter were brought near each other (within the thirtieth or fortieth part of an inch), a bright spark was produced, and more than half the volume of the charcoal became ignited to whiteness; and by withdrawing the points from each other, a constant discharge took place through the heated air, in a space equal at least to four inches, producing a most brilliant ascending arch of light, broad, and conical in form in the middle. When any substance was introduced into this arch it instantly became ignited; platina melted as readily in it as wax in the flame of a common candle; quartz, the sapphire, magnesia, lime, all entered into fusion; fragments of diamond, and points of charcoal and plumbago, rapidly disappeared, and seemed to evaporate in it, even when the connexion was made in a receiver exhausted by the air-pump; but there was no evidence of their having previously undergone fusion.

When the communication between the points positively and negatively electrified was made in air, rarefied in the receiver of the air-pump, the distance at which the discharge took place increased as the exhaustion was made; and when the atmosphere in the vessel supported only one-fourth of an inch of mercury in the barometrical gage, the sparks passed through a space of nearly half an inch; and by withdrawing the points from each other, the discharge was made through six or seven inches, producing a most beautiful coruscation of purple light, the charcoal became intensely ignited, and some platina wire attached to it fused with brilliant scintillations, and fell in large globules upon the plate of the pump. All the phœnomena of chemical changes were produced with intense rapidity by this combination. When the points of charcoal were brought near each other in nonconducting fluids, such as oils, ether, and oxymuriatic compounds, brilliant sparks occurred, and elastic matter was rapidly generated: and such was the intensity of the electricity, that sparks were produced, even in good imperfect conductors, such as the nitric and sulphuric acids.

VOLTE, in the manage, a round or circular motion, consisting of a gait of two treads, made by a horse going side-ways round a centre, in such a manner, that these two treads make parallel tracks; one by the fore-feet, larger; and the other by the hinder feet, smaller; the shoulder bearing upwards, and the croupe approaching towards the centre. Sometimes the volte is of one tread, as when a horse makes volts in corvets, and in caprioles, so that the haunches follow the shoulders, and move forwards on the same tread. In general, the track of the volte is made round, sometimes oval, and sometimes a square of four straight lines, so that these treads, whether round or square, inclose a terrain or manage ground, the middle of which is sometimes distinguised by a pillar, or else by an imaginary centre, which is supposed, in order to regulate the distances, and the justness of the volts.

Demivolte, a half round of one tread or two, made by the horse at one of the angles of the volte; or else at the end of the line of the passade: so that being near the end of this line, or else one of the corners of the volte, he changes hands to return by a semicircle to regain the same line. When he does not return upon this line, they say he has not closed his demivolte.

Demivoltes of the length of a horse, semicircles of two treads, which a horse traces in working side-ways; the haunches low, and the head high, turning very narrow; so that having formed a demi-round, he changes the hand to make another, which is again followed by another change of hand, and another demi-round, which crosses the first. This demivolte of a horse's length is a very pretty manage, but very difficult, if we compare it to a figure of eight.

Demivolte of five times, or *passade of five times*. See PASSADE.

Reversed volte, is a track of two treads made by the horse with his head to the centre, and his croupe out, so that he goes side-ways upon a walk, trot, or gallop; and traces out a small circumference with his shoulders, and a larger one with his croupe. Reversed voltes upon a walk appease and quiet unruly horses, if they are made methodically.

The *six volts* are made *terra a terra*; two to the right, two to the left, and two to the right again, all with one breath, observing the ground with the same cadence, working short and quick, and ready, the fore hand in the air, the breech upon the ground, the head and tail firm and steady.

VOLTURNO, a river of Naples, which rises in the Apennines, passes by Isernia and Capua, and enters the gulf of Gaieta.

VOLVA. (The ruffle, Withering.) The membranaceous calyx of a fungus.—This is said to be approximating, when it is near the cap; remote, when at a distance.

VOLUBI'LITY. *s.* (*volubilitas*, Latin.) 1. The act or power of rolling (*Watts*). 2. Activity of tongue; fluency of speech (*Clarendon*). 3. Mutability; liableness to revolution (*L'Estrange*).

VO'LUBLE. *a.* (*volubilis*, Latin.) 1. Formed so as to roll easily; formed so as to be easily put in motion (*Hammond*). 2. Rolling; having quick motion (*Milton*). 3. Nimble; active (*Watts*). 4. Fluent of words (*Shakspeare*).

VOLUCELLA, in the entomology of Fabricius, a tribe of the genus BOMBYLIUS, which see.

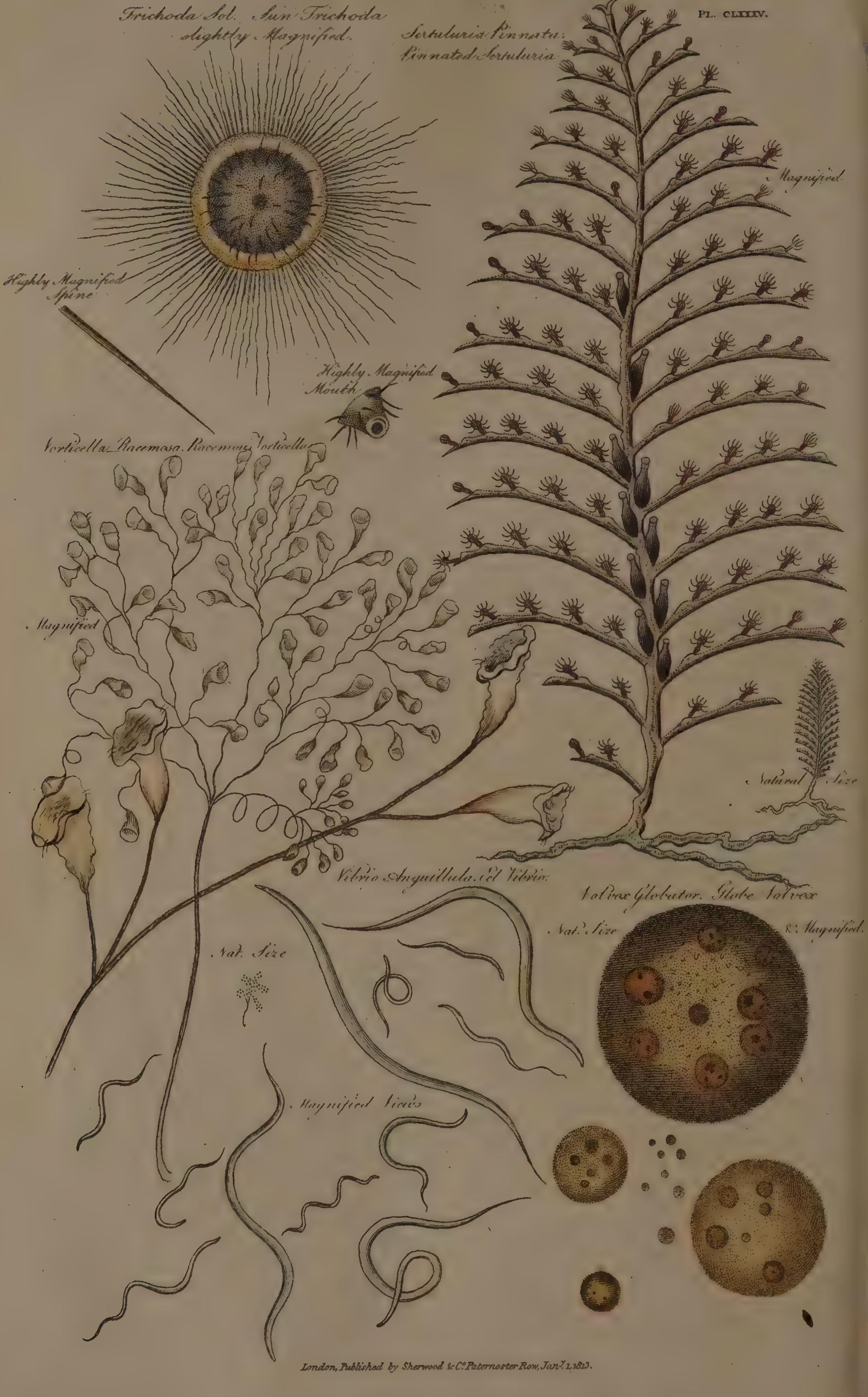
VOLVIC, a town of France, in the department of Puy de Dome. Here are immense quarries, which furnish materials for the buildings of the adjacent towns, and for the statues in the churches. It is six miles N. of Clermont.

VO'LUME. *s.* (*volumen*, Latin.) 1. Something rolled or convolved. 2. As much as seems convolved at once; as a fold of a serpent, a wave of water (*Dryden*). 3. A book; so called because books were anciently rolled on a staff (*Spenser*).

VOLU'MINOUS. *a.* (from *volume.*) 1. Consisting of many complications (*Milton*). 2.

NATURAL HISTORY.

Pl. CLXXXV.


Trichoda Sol. Sun Trichoda slightly Magnified.
Highly Magnified Spine
Highly Magnified Mouth
Sertularia Pinnata. Pinnated Sertularia
Magnified
Natural Size
Vorticella Racemosa. Racemose Vorticella
Magnified
Nat. Size
Vibrio Anguillula. Eel Vibrio.
Magnified Vibrio
Volvox Globator. Globe Volvox
Nat.l Size
& Magnified.

London, Published by Sherwood & Co. Paternoster Row, Jan.y 1, 1813.

Consisting of many volumes, or books (*Milt.*). 3. Copious; diffusive (*Clarendon*).

VOLU'MINOUSLY. *ad.* (from *voluminous.*) In many volumes or books (*Granville*).

VOLUMNUS and VOLUMNA, two deities who presided over the will, chiefly invoked at marriages, to preserve concord between the husband and wife. They were particularly worshipped by the Etrurians. (*Livy*).

VO'LUNTARILY. *ad.* (from *voluntary.*) Spontaneously; of one's own accord; without compulsion (*Hooker*).

VO'LUNTARY. *a.* (*voluntaire,* French; *voluntarius,* Latin.) 1. Acting without compulsion; acting by choice (*Hooker*). 2. Willing; acting with willingness (*Pope*). 3. Done by design; purposed (*Perkins*). 4. Done without compulsion (*Seed*). 5. Acting of his own accord; spontaneous (*Milton*).

VO'LUNTARY. *s.* (from the adjective.) A volunteer; one who engages in any affair of his own accord (*Davies*).

VOLUNTARY, in music, a piece played by a musician extempore, according to his fancy. This is often used before he begins to set himself to play any particular composition, to try the instrument, and to lead him into the key of the piece he intends to perform.

VOLUNTEE'R. *s.* (*volontaire,* French.) A soldier who enters into the service of his own accord (*Collier*).

To VOLUNTEE'R. *v. n.* To go for a soldier (*Dryden*).

VOLVOX, in zoology, a genus of the class vermes, order infusoria. Worm invisible to the naked eye, simple, pellucid, spherical. Nine species, found in vegetable infusions, stagnant, and sometimes in purer waters, or waters kept for some time in a glass; often of a greenish, or greenish-yellow cast; sometimes resembling small soap-bubbles; some solitary, some gregarious. We shall notice two, the first for the singularity of its habitation.

1. V. dimidiatus. Globular when at rest, hemispherical when in motion. Found on the tails of tadpoles.

2. V. globator. Spherical, membranaceous, with various sized homogeneous molecules. Found in stagnant waters and vegetable infusions; body green or yellow, moving slowly round its axis in all directions, a pellucid membrane covered with smaller and larger molecules, and these provided with a still smaller molecular progeny, containing within itself a tribe of already impregnated descendants. See Nat. Hist. Pl. CLXXXV.

VOLUPTAS and VOLUPIA, the goddess of sensual pleasures, worshipped at Rome, where she had a temple. She was represented as a young and beautiful woman, well dressed, and elegantly adorned, having Virtue under her feet.

VOLU'PTUARY. *s.* (*voluptuaire,* French; *voluptuarius,* Latin.) A man given up to pleasure and luxury (*Atterbury*).

VOLU'PTUOUS. *a.* (*voluptuosus,* Latin.) Given to excess of pleasure; luxurious (*Bentley*).

VOLU'PTUOUSLY. *ad.* Luxuriously; with indulgence of excessive pleasure (*South*).

VOLU'PTUOUSNESS. *s.* (from *voluptuous.*) Luxuriousness; addictedness to excess of pleasure (*Donne*).

VOLUTA. Volute. Mitre. In zoology, a genus of the class vermes, order testacea. Animal a limax; shell one-celled, spiral; aperture without a beak, and somewhat effuse; pillar twisted or plaited; generally without lips or perforation. A hundred and forty-four species, thus subdivided:

A. Aperture entire.
B. Subcylindrical, emarginate.
C. Oboval, effuse, emarginate.
D. Fusiform.
E. Ventricose; spire papillary at the tip.

These are scattered over the coasts and marshes of the globe, several of them resembling the helix, and others the murex. We shall select an example or two.

1. V. auris Midæ. Midas's ear. Shell contracted, oval-oblong, with a rugged spire; pillar two-toothed. Inhabits India, in marshy woods and swamps, and very much resembles a helix: about four inches long; shell brown, solid, wrinkled, or striate; spire large, with from six to nine whorls, each terminated by a granulate band, the outer ones cancellate; aperture long, wider beneath.

2. V. monilis. Necklace volute. Shell entire, white, with an obliterated white spire; pillar obliquely striate. Inhabits China, where it is used to make beads and necklaces; one and a half inches long. Another variety in Africa, two and a half inches long.

3. V. episcopalis. Mitre volute. Shell emarginate, smooth; margins of the whorls entire; lip denticulate; pillar with four plates. Inhabits India. the inhabitant or fish is said to be of a poisonous nature if eaten, and to wound those who touch it with a kind of poisoned trunk. The natives of the island Tanna fix the shells in handles, and use them as hatchets. Shell five inches long.

VOLUTA'TION. *s.* (*volutatio,* Latin.) Wallowing; rolling.

VOLUTE, in architecture, a kind of spiral scroll, and used in the Ionic and Composite capitals; of which it makes the principal characteristic and ornament.

VOLUTE, in helminthology. See VOLUTA.

VOLUTELLA, in botany, a genus of the class cryptogamia, order fungi. Fungus salver-shaped, stipitate; upper surface of the cap dotted, umbilicate; the margin at first revolute; seeds similar; stem short, cetaceous. Two species; exotics.

VOLVULUS. (from *volvo,* to roll up.) See ILIAC PASSION.

VOMER. (so called from its resemblance to a ploughshare.) A bone of the nose situated in the cavity of the nostrils, which it divides into two parts.

VOMICA. An abscess of the lungs.

VOMICA NUT. See NUX VOMICA.

VOMICA NUX. See NUX VOMICA.

To VO'MIT. *v. n.* (*vomo*, Latin.) To cast up the contents of the stomach (*More*).

To VO'MIT. *v. a.* (*vomir*, French.) 1. To throw up from the stomach (*Arbuthnot*). 2. To throw up with violence from any hollow.

VO'MIT. *s.* (from the verb.) 1. The matter thrown up from the stomach (*Sandys*). 2. An emetic medicine; a medicine that causes vomits (*Arbuthnot*).

VOMITING. A forcible ejection of food, or any other substance, from the stomach, through the œsophagus and mouth. It is either idiopathic, when arising from a cause in the stomach itself; or symptomatic, when originating from diseases seated in any other part of the body. Its immediate cause is an antiperistaltic, spasmodical, convulsive constriction of the stomach, and pressure of the diaphragm and abdominal muscles. It is an effort of nature to expel whatever molests or is troublesome in the stomach.

VOMITING OF BLOOD. See HÆMATEMESIS.

VOMI'TION. *s.* (from *vomo*, Latin.) The act or power of vomiting (*Grew*).

VO'MITIVE. *a.* (*vomitif*, French.) Emetic; causing vomits (*Brown*).

VO'MITORY. *a.* (*vomitoire*, Fr. *vomitorius*, Lat.) Procuring vomits; emetic.

VOMITUS CRUENSIS. See HÆMATEMESIS.

VOORN, a fort of Holland, in Gelderland, on a small island formed by the Waal and the Meuse, at the E. end of Bommelwert, seven miles E. by N. of Bommel.

VOORN, an island of S. Holland, between the mouths of the Meuse, twenty miles long and five broad. This island, with Goree and Overflackee, form the territory called Voornland, which anciently belonged to Zealand. Briel is the capital.

VORA'CIOUS. *a.* (*vorace*, Fr. *vorax*, Latin.) Greedy to eat; ravenous; edacious (*Gov. of Tongue*).

VORACIOUS APPETITE. See BULIMIA.

VORA'CIOUSLY. *ad.* (from *voracious*.) Greedily; ravenously.

VORA'CIOUSNESS. VORA'CITY. *s.* (*voracité*, Fr. *voracitas*, Latin.) Greediness; ravine; ravenousness (*Sandys*).

VO'RTEX. *s.* In the plural *vortices*. (Lat.) Any thing whirled round (*Newton*).

VORTEX, or WHIRLWIND, in meteorology, a sudden, rapid, violent motion of the air, in circular whirling directions.

VORTEX is also used for an eddy or whirlpool, or a body of water, in certain seas and rivers, which runs rapidly round, forming a sort of cavity in the middle.

VORTEX, in the Cartesian philosophy, is a system or collection of particles of matter moving the same way, and round the same axis.

Such vortices are the grand machines by which the Cartesians solved most of the motions and other phenomena of the heavenly bodies. And accordingly, the doctrine of these vortices makes a great part of the Cartesian philosophy. See CARTESIAN.

VO'RTICAL. *a.* (from *vortex*.) Having a whirling motion.

VORTICELLA, in zoology, a genus of the class vermes, order infusoria. Body contractile, naked, and furnished with ciliate rotatory organs. Fifty-seven species; found in stagnant waters, in seas adhering to fuci, in rivers adhering to confervæ, sometimes in fresh waters, appearing like a point.

The species are thus subdivided:

A. Seated on a pedicel or stem.

B. Furnished with a tail.

C. Without tail or stem.

We shall offer an example or two.

1. V. racemosa. Compound, with a rigid stem, and very much branched, long pedicels. Inhabits stagnant water; pedicel very slender, and from it proceed a countless number of pellucid pearls.

2. V. polypina. Compound, bell-shaped, with retortile branched stem. Inhabits the European seas, adhering to fuci, and appears to the naked eye like a white point.

3. V. ampulla. Contained in a bottle-shaped pellucid bag: head divided into two lobes. The bag of the shape of a common water-bottle, in which the animalcule is placed sometimes at the bottom, sometimes nearly filling it.

4. V. viridis. Cylindrical, uniform, green, opake. In fresh water, appearing to the naked eye a mere green point.

VORTIGERN, a British chief, who, on the departure of the Romans in 445, was elected king of South Britain. He was a careless and luxurious prince, and being threatened by the Scots and Picts, applied to the Saxons for assistance. The Saxons landed anno 450, under the conduct of two brothers, Hengist and Horsa, and succeeded in the overthrow of the confederate army. Disagreements soon happened between the Saxons and the Britons, and wars ensued, which ended in the ruin of the natives. Vortigern afterwards married Rowena, the daughter of Hengist, who, in consequence of the marriage, got possession of the whole provinces of Kent. Hengist took the king prisoner, and for his ransom obtained those provinces since called Essex, Sussex, and Middlesex. Thus the Saxons acquired power by degrees, and Vortigern retiring to a castle he had built in North Wales, was burnt there, A.D. 484

VOS (Martin de), a celebrated painter, was born at Antwerp about 1534. He was excellent in every branch of the art, and his drawings have been highly esteemed. He died in 1604.

VOSSIUS (John Gerardus), a learned writer, was born near Heidelberg, in 1577. He began his studies at Dort, from whence he went to Leyden, and in 1598 was made master of arts, and doctor in philosophy. In 1614 he became director of the theological college, and afterwards professor of eloquence and chronology. Though he had made himself enemies abroad by some of his writings, particularly by his History of the Pelagian Controversy, printed in 1618; he gained both honour and profit by them in England, and archbishop Laud obtained for him a prebend in the church of Canterbury, while he resided at Leyden. He accordingly came over to be installed, took a doctor of laws degree at Oxford, and then returned. In 1633 he accepted the professorship of history at Amsterdam, where he died in 1649. His works amount to 6 vols. folio.

Vossius (Isaac), a man of great parts and learning, the son of John Gerard Vossius, was born at Leyden in 1618. He had no other tutor but his father, and employed his whole life in studying: his merit recommended him to a correspondence with queen Christina of Sweden; he made several journeys into Sweden by her order, and had the honour to teach her the Greek language. In 1670 he came over to England, where king Charles made him canon of Windsor; though he knew his character well enough to say, That there was nothing that Vossius refused to believe, except the Bible. He appears indeed by his publications, which are neither so useful nor so numerous as his father's, to have been a most credulous man, while he afforded many circumstances to bring his religious faith in question. He died at Windsor castle in 1688.

VO'TARIST. *s.* (*devotus*, Latin.) One devoted to any person or thing; one given up by a vow to any service or worship (*Milton*).

VO'TARY. *s.* One devoted, as by a vow, to any particular service, worship, study, or state of life (*Swift*).

Vo'tary. *a.* Consequent to a vow (*Bacon*).

VO'TARESS. *s.* (female of *votary.*) A woman devoted to any worship or state (*Pope*).

VOTE. *s.* (*votum*, Latin.) Suffrage; voice given and numbered (*Roscommon*).

To Vote. *v. a.* 1. To choose by suffrage; to determine by suffrage (*Bacon*). 2. To give by vote (*Swift*).

VO'TER. *s.* (from *vote.*) One who has the right of giving his voice or suffrage (*Swift*).

VO'TIVE. *a.* (*votivus*, Latin.) Given by vow (*Prior*).

To VOUCH. *v. a.* (*voucher*, Norman Fr.) 1. To call to witness; to obtest (*Dryden*). 2. To attest; to warrant; to declare; to maintain by repeated affirmations (*Atterbury*).

To Vouch. *v. n.* To bear witness; to appear as a witness; to give testimony (*Swift*).

Vouch. *s.* (from the verb.) Warrant; attestation (*Shakspeare*).

VOU'CHER. *s.* (from *vouch.*) 1. One who gives witness to any thing (*Pope*). 2. Testimony (*Locke*).

To VOUCHSA'FE. *v. a.* (*vouch* and *safe.*) 1. To permit any thing to be done without danger. 2. To condescend; to grant (*Shakspeare*).

To Vouchsa'fe. *v. n.* To deign; to condescend; to yield (*Dryden*).

VOUCHSA'FEMENT. *s.* (from *vouchsafe.*) Grant; condescension (*Boyle*).

VOW. *s.* (*veu*, French; *votum*, Latin.) 1. Any promise made to a divine power; an act of devotion (*Hammond*). 2. A solemn promise, commonly used for a promise of love or matrimony (*Dryden*).

To Vow. *v. a.* (*vouer*, French; *voveo*, Latin.) 1. To consecrate by a solemn dedication; to give to a divine power (*Spelman*). 2. To devote: a ceremonial phrase (*Spenser*).

To Vow. *v. n.* To make vows or solemn promises (*Suckling*).

VOWEL, in grammar, a letter which affords a complete sound of itself, or a letter so simple as only to need a bare opening of the mouth to make it heard, and to form a distinct voice. The vowels are six in number, viz. a, e, i, o, u, y. See Grammar.

VOWFE'LLOW. *s.* (*vow* and *fellow.*) One bound by the same vow (*Shakspeare*).

VO'YAGE. *s.* (*voyage*, French.) 1. A travel by sea (*Prior*). 2. Course; attempt; undertaking (*Shakspeare*). 3. The practice of travelling (*Bacon*).

To Vo'yage. *v. n.* (*voyager*, French.) To travel by sea (*Pope*).

To Vo'yage. *v. a.* To travel; to pass over.

VO'YAGER. *s.* (from *voyageur*, French.) One who travels by sea (*Pope*).

UP. *ad.* (up, Saxon; *op*, Dutch and Dan.) 1. Aloft; on high; not down (*Knolles*). 2. Out of bed; in the state of being risen from rest (*Wotton*). 3. In the state of being risen from a seat (*Addison*). 4. From a state of decumbiture or concealment. 5. In a state of being built (*Shakspeare*). 6. Above the horizon (*Judges*). 7. To a state of proficiency; *he is getting* up *in reputation* (*Atterbury.*) 8. In a state of exaltation: *the favourite is now* up *as high as he wishes* (*Spenser*). 9. In a state of climbing: *he is coming* up. 10. In a state of insurrection: *the people are* up *in Wales* (*Shakspeare*). 11. In a state of being increased, or raised: *the price is getting* up (*Dryden*). 12. From a remoter place, coming to any person or place: *our servant who follows us will soon be* up *with us* (*L'Estrange*). 13. Into order: *as, he drew* up *his regiment.* 14. From younger to elder years (*Psalms*). 15. Up *and down.* Dispersedly; here and there (*Addison*). 16. Up *and down.* Backward and forward. 17. Up *to.* To an equal height with (*Addison*). 18. Up *with.* Adequately to (*Rogers*). 19. Up *with.* A phrase that signifies the act of raising any thing to give a blow (*Sidney*).

Up. *interjection.* 1. A word exhorting to rise from bed (*Pope*). 2. A word of exhortation, exciting or rousing to action: up *and try* (*Spenser*).

Up. *preposition.* From a lower to a higher part; not down: *go* up *the hill* (*Bacon*).

UPAS TREE. Boas upas. See Toxicaria Macasariensis.

To UPBE'AR. *v. a.* preterit *upbore*; participle passive *upborn.* (*up* and *bear.*) 1. To sustain aloft; to support in elevation (*Milton*). 2. To raise aloft (*Pope*). 3. To support from falling (*Spenser*).

To UPBRA'ID. *v. a.* (upȝebꞃeꝺan, Sax.) 1. To charge contemptuously with any thing disgraceful (*Blackmore*). 2. To object as matter of reproach (*Sprat*). 3. To urge with reproach (*Decay of Piety*). 4. To reproach on account of a benefit received from the reproacher (*Shakspeare*). 5. To bring reproach upon; to show faults by being in a state of comparison (*Sidney*). 6. To treat with contempt (*Spenser*).

UPBRA′IDER. *s.* (from *upbraid.*) One that reproaches.

UPBRA′IDINGLY. *ad.* By way of reproach (*Ben Jonson*).

To UPBRA′Y. *v. a.* To shame (*Spenser*).

UPBRO′UGHT. part. pass. of *upbring.* Educated; nurtured (*Spenser*).

U′PHAND. *a.* (*up* and *hand.*) Lifted by the hand (*Moxon*).

U′PCAST. *a.* Thrown upward (*Dryden*).

U′PCAST. *s.* A term of bowling; a throw; a cast (*Shakspeare*).

To UPGA′THER. *v. n.* (*up* and *gather.*) To contract (*Spenser*).

UPHE′LD. pret. and part. pass. of *uphold.* Maintained; sustained (*Milton*).

UPHI′LL *a.* (*up* and *hill.*) Difficult; like; the labour of climbing a hill (*Clarissa*).

To UPHOA′RD. *v. a.* (*up* and *hoard.*) To treasure; to store; to accumulate in private places (*Spenser*).

To UPHO′LD. *v. a.* pret. *upheld*; part. pass. *upheld* or *upholden.* (*up* and *hold.*) 1. To lift on high (*Dryden*). 2. To support; to sustain; to keep from falling (*Shakspeare*). 3. To keep from declension (*Bacon*). 4. To support in any state of life (*Raleigh*). 5. To continue; to keep from defeat (*Hooker*). 6. To keep from being lost (*Shakspeare*). 7. To continue without failing (*Holder*). 8. To continue in being (*Hakewill*).

UPHO′LDER. *s.* (from *uphold.*) 1. A supporter (*Swift*). 2. A sustainer in being (*Hale*). 3. An undertaker; one who provides for funerals (*Gay*).

UPHO′LSTERER. *s.* (a corruption of *upholder.*) One who furnishes houses; one who fits up apartments with beds and furniture (*Pope*).

UPIS, in the entomology of Fabricius, a tribe of the coleopterous genus ATTELLABUS, which see.

UPLAND, a province of Sweden, in the division of Sweden Proper. It is a sort of peninsula, bounded on the W. by Westmania and Gestricia, on the N.E. by the Baltic, and on the S. by the sea of Sudermania. It is 70 miles long and 45 broad, chiefly covered with shapeless stones and impenetrable woods; but it is enriched with inexhaustible mines of copper, iron, and silver; and the peasants are chiefly employed in the manufacture of those metals. Stockholm is the capital.

U′PLAND. *s.* (*up* and *land.*) Higher ground (*Burne*).

U′PLAND. *a.* Higher in situation (*Carew*).

UPLA′NDISH. *a.* (from *upland.*) Mountainous; inhabiting mountains (*Chapman*).

To UPLA′Y. *v. a.* (*up* and *lay.*) To hoard; to lay up (*Donne*).

To UPLI′FT. *v. a.* (*up* and *lift.*) To raise aloft (*Addison*).

UPMINSTER, a village in Essex, seated on a lofty eminence, three miles S.E. of Rumford. Dr. Denham, author of Astro-Theology and Physico-Theology, was rector of this place 54 years; and here is a spring, which he mentions in the latter work, as a proof that springs have their origin from the sea, and not from rains and vapours; for this spring, in the greatest droughts, was little, if at all, diminished, after an observation of 20 years, although the ponds all over the country, and an adjoining brook, had been dry many months.

U′PMOST. *a.* (an irregular superlative formed from *up.*) Highest; topmost (*Dryden*).

UPO′N. *preposition.* (*up* and *on.*) 1. Not under; noting being on the top (*Shakspeare*). 2. Not within; being on the outside (*Bible*). 3. Thrown over the body, as clothes (*Shaks.*). 4. By way of imprecation or infliction: *mischief* upon *him* (*Shakspeare*). 5. It expresses obtestation, or protestation: upon *my honour* (*Shakspeare*). 6. It is used to express any hardship or mischief: *it brought evil* upon *them* (*Burnet*). 7. In consequence of: *he valued himself* upon *his birth* (*Clarendon*). 8. In immediate consequence of: upon *one kind word he was reconciled* (*Tillotson*). 9. In a state of view: *it appears* upon *history* (*Temple*). 10. Supposing a thing granted: upon *these terms it is admitted* (*Burnet*). 11. Relating to a subject: *Locke wrote* upon *government* (*Temple*). 12. With respect to: *I was silent* upon *questions which I did not understand* (*Dryden*). 13. In consideration of: *he surrendered* upon *splendid promises* (*Pope*). 14. In noting a particular day: *Cesar died* upon *the ides of March* (*Addison*). 15. Noting reliance or trust: *I do it* upon *your word* (*Shakspeare*). 16. Near to: noting situation: *Fontarabia is* upon *the edge of France* (*Clarendon*). 17. On pain of: *hence!* upon *your lives* (*Sidney*). 18. On occasion of: *the king,* upon *this news, marched* (*Swift*). 19. By inference from: upon *your promises nothing will follow* (*Locke*). 20. Noting attention: *I was* upon *my work, when the fright happened* (*Locke*). 21. Noting particular pace: *he came on* upon *a gallop* (*Dryden*). 22. Exactly; according to: *they are near* upon *ten thousand* (*Shakspeare*). 23. By: noting the means of support: *he lives* upon his annuity (*Woodw.*). 24. *Upon* is, in many of its significations, now contracted into *on.* See ON.

U′PPER. *a.* (a comparative from *up.*) 1. Superior in place; higher (*Peacham*). 2. Higher in power or dignity (*Hooker*).

U′PPERMOST. *a.* (superlative from *upper.*) 1. Highest in place (*Dryden*). 2. Highest in power or authority (*Glanville*). 3. Predominant; most powerful (*Dryden*).

UPPINGHAM, a town in Rutlandshire, with a market on Wednesday; seated on an eminence, six miles S. of Oakham, and 90 N. by W. of London. Lon. 0. 45 W. Lat. 52. 36 N.

U'PPISH. *a.* (from *up.*) Proud; arrogant.

To UPRA'ISE. *v. a.* (*up* and *raise.*) To raise up; to exalt (*Milton*).

To UPRE'AR. *v. a.* (*up* and *rear.*) To rear on high (*Gay*).

U'PRIGHT. *a.* (*up* and *right.*) 1. Straight up; perpendicularly erect (*Bacon*). 2. Erected; pricked up (*Spenser*). 3. Honest; not declining from the right (*Milton*).

U'PRIGHT. *s.* Elevation; orthography (*Moxon*).

U'PRIGHTLY. *ad.* (from *upright.*) 1. Perpendicularly to the horizon. 2. Honestly; without deviation from the right (*Taylor*).

U'PRIGHTNESS. *s.* (from *upright.*) 1. Perpendicular erection (*Waller*). 2. Honesty; integrity (*Atterbury*).

To UPRI'SE. *v. n.* (*up* and *rise.*) 1. To rise from decumbiture (*Psalms*). 2. To rise from below the horizon (*Cowley*). 3. To rise with acclivity (*Shakspeare*).

UPRI'SE. *s.* Appearance above the horizon (*Shakspeare*).

U'PROAR. *s.* (*oproer*, Dutch.) Tumult; bustle; disturbance; confusion (*Raleigh*).

To U'PROAR. *v. a.* (from the noun.) To throw into confusion: not used (*Shakspeare*).

To UPROO'T. *v. a.* (*up* and *root.*) To tear up by the root (*Dryden*).

To UPROU'SE. *v. a.* (*up* and *rouse.*) To waken from sleep; to excite to action (*Sh.*).

UPSAL, a town of Sweden, in Upland, with a famous university, and an archbishop's see. It contains, exclusive of the students, above 3000 inhabitants. It is divided into two almost equal parts by the river Sala; and the streets are drawn at right angles from a central kind of square. A few of the houses are built of brick; but the generality are constructed of wood, and painted red. The roofs are covered in with turf; and each house has its small courtyard or garden. Upsal was formerly the metropolis of Sweden, and the royal residence. The ancient palace was a magnificent building, until great part of it was consumed by fire, in 1702. The cathedral, a large Gothic structure of brick, has been several times greatly damaged by fire, and as often repaired: it contains the monument of the famous Gustavus Vasa. The university is the most ancient in Sweden, and the first seminary in the North for academical education. The Royal Society here is likewise the oldest literary academy in the North. Here is a botanical garden, of which the celebrated Linnéus was superintendant. Upsal is seated in a vast open plain, fertile in corn, 35 miles N.N.W. of Stockholm. Lon. 17. 48 E. Lat. 59. 52 N.

U'PSHOT. *s.* (*up* and *shot.*) Conclusion; end; last amount; final event (*Pope*).

U'PSIDE *down.* (an adverbial form of speech.) 1. With the lower part above the higher (*Heylin*). 2. In confusion; in complete disorder (*Raleigh*).

U'PSPRING. *s.* A man suddenly exalted; an upstart: not used (*Shakspeare*).

To UPSTA'ND. *v. n.* (*up* and *stand.*) To be erected (*May*).

To UPSTA'RT. *v. n.* (*up* and *start.*) To spring up suddenly (*Dryden*).

UPSTA'RT. *s.* One suddenly raised to wealth, power, or honour; what suddenly rises and appears (*Milton*).

To UPSTA'Y. *v. a.* (*up* and *stay.*) To sustain; to support (*Milton*).

To UPSWA'RM. *v. a.* (*up* and *swarm.*) To raise in a swarm: out of use (*Shakspeare*).

To UPTA'KE. *v. a.* (*up* and *take.*) To take into the hands (*Spenser*).

UPTON, a town in Worcestershire, with a market on Thursday; seated on the Severn, 11 miles S. of Worcester, and 109 W.N.W. of London. Lon. 1. 55 W. Lat. 51. 59 N.

To UPTRA'IN. *v. a.* (*up* and *train.*) To bring up; to educate: not used (*Spenser*).

To UPTU'RN. *v. a.* (*up* and *turn.*) To throw up; to furrow (*Milton*).

UPUPA. Hoop, or hoopoe. In zoology, a genus of the class aves, order picæ. Bill arched, long, slender, convex, a little compressed, somewhat obtuse; nostrils small, at the base of the bill; tongue obtuse, entire, triangular, very short; feet formed for walking. Ten species, scattered over the warmer climates of the globe. The following are the chief.

1. U. epops. Common hoopoe. Variegated with blackish and rufous white, beneath reddish-white; crest yellow brown, or pale orange tipt with black; tail black, with a white bar.

This species, often seen in our own country, is easily distinguished by its enormous tuft of feathers, which rise perpendicularly from the crown of the head, and which it can erect or depress at pleasure. Of this crest, the longest feathers are in the middle; so that, when erected, it is of a semicircular form, two inches above the head. The crest feathers are all brown, tipt at the end with black. The back, scapulars, and wings, are crossed with broad bars of white and black. The neck a pale reddish brown. The breast and belly are white.

The hoopoes are spread over the whole of the ancient continent, from Sweden, where they inhabit the large forests; and even from Lapland and the Orcades; to the Canaries and the Cape of Good Hope. Throughout all Europe they are birds of passage, never remaining the whole year, even in the mild climates of Greece and Italy. They are seen among those vast crowds of migratory birds that, twice every year, pass the island of Malta.

The food of these birds, in a state of nature, is commonly insects, and especially such as are found upon the surface of the ground; for they seldom perch upon trees, or remain long upon the wing. In Egypt, they narrowly watch the retreat of the Nile, on account of its leaving a rich slime, which, being warmed by the sun, soon begins to teem with insects of every denomination. Their flesh smells so strongly of musk, that the cat, which is so fond of birds in general, will not taste it. The hoopoe builds in holes of rotten trees, or of old walls, and lays from two to seven eggs. This, according to ancient fable, is the bird into which Tereus was metamorphosed.

2. U. paradisea. Crested hoopoe. Crested; chesnut; two of the tail-feathers very long. Inhabits India: nineteen inches in length.

When tamed, this bird shews great attachment to its master; but is not easily reconciled to the company of strangers. This exclusive attachment becomes even so strong, as to efface the desire of liberty. A tamed hoopoe will not escape from its keeper, though left at full liberty to depart. When fully domesticated, it will eat indiscriminately either bread or raw flesh, and may be held a bird of prey. In the vicinity of Cairo and Rosetto there are two varieties, the one migratory, and the other stationary: and of the former, the individuals, at certain seasons, become fat, and are excellent eating. In Egypt, these birds assemble in small flocks; and when one finds itself deserted by the rest, it recals its lost companions by a feeble sharp cry. In other places, the hoopoes are so solitary in their manners, that even when they arrive in the same district together, before they take their departure, they are neighbours who hold no kind of communication with each other.

The young hoopoes are not all excluded from the shell at the same time. Several days, or even weeks, elapse, before the last are emancipated, if we may trust to their appearance in the nest; some being nearly fledged, while the rest are almost bare. The Italian naturalists allege, that birds of this species produce several broods in the same season, and that the young disperse as soon as they become independent of their parents. About the end of summer, the hoopoes leave Europe; but, as they are produced at different seasons, they are not all equally prepared for the journey: whence many of the young and infirm are forced to remain behind, and they shut themselves up in the holes in which they were reared. In a climate unsuitable to their constitution these pass the winter in a state approaching to torpor, taking but little food, and often perishing. This has given rise to the opinion that the birds of this genus lodge spontaneously during winter in hollow trees, where they remain naked and benumbed till the approach of spring. Similar accounts have been given of the cuckoo, from probably a like cause, and founded on no better grounds.

These birds, it is said, among the Egyptians, are accounted the emblems of filial affection. No sooner do the father and mother become frail from age, than their young attend to nurse and comfort them. They warm them under their wings; aid them in their painful moulting, by pulling away the old feathers; apply healing herbs to their eyes when tender; and render them all those services, which the young themselves received during their feeble age. Such fables, however agreeable they may be to the pious credulity of the Egyptians, are far from being so well attested as to merit any credit from the historian.

The crested hoopoe is about the size of a thrush, and weighs from two to four ounces. So large a crest, added to a creature of so diminutive a size, renders this bird one of the most fantastical of the feathered tribes. The crest consists of two rows of feathers, equidistant. The feathers of the longest row arise from the middle of the crown; and hence, when erect, they form a semicircle, about two inches and a half in height. The whole of these feathers are red, and terminate with a black spot. The upper part of the body is grey, with a tinge of brown, varied with transverse waves of dirty white: the wings and tail are black, undulated with bars of white. There are some varieties of this bird in Europe, and a distinct species in the island of Madagascar, and at the Cape of Good Hope. To these, M. Montbeillard, the continuator of Buffon, has added a species, which he calls the promeripe, distinguished by a long tail, resembling that of the bird of Paradise. M. Brisson has added four different species of birds to this genus, from America and the West Indies. These do not, however, seem strictly to belong to it, because they all want the large crest, the most singular characteristic of the European hoopoe.

There are two others, the Mexican and the brown or New Guinea, the former nineteen, the latter twenty-two inches long.

U'PWARD. *a.* (*up* and peaɼᴅ, Saxon.) Directed to a higher part (*Dryden*).

U'PWARD. *s.* The top: out of use (*Shaks.*).

U'PWARD, U'PWARDS. *ad.* (*up* and peaɼᴅ.) 1. Toward a higher place (*Dryden*). 2. Toward heaven and God (*Hooker*). 3. With respect to the higher part (*Milton*). 4. More than; with tendency to a higher or greater number (*Hooker*). 5. Toward the source (*Pope*).

To UPWI'ND. *v. a.* pret. and pass. *upwound.* (*up* and *wind.*) To convolve (*Spenser*).

UR (anc. geog.), a citadel of Mesopotamia, situated between the Tigris and Nisibis; taken by some for Ur of the Chaldees, the residence of Abraham. What seems to confirm this is, that from Ur to Haran, the other residence of the patriarch, the road lies directly for Palestine. And it is no objection that Ur is said to be in Mesopotamia: because the parts next the Tigris were occupied by the Chaldeans, as seems to be confirmed from Acts vii. 2, 4. It is called Orche, in Strabo; Orchoe, in Ptolemy.

URACH, a town of Suabia, in the duchy of Wirtemburg. Here are considerable manufactures of damask and other linens. It is 21 miles S.S.E. of Stutgard, and 24 W. of Ulm. Lon. 9. 15 E. Lat. 48. 27 N.

URACHUS. (from ȣρον, urine, and εχω, to contain.) The ligamentous cord that arises from the basis of the urinary bladder, which it runs along and terminates in the umbilical cord. In the fetuses of brute animals, which the ancients mostly dissected, it is a hollow tube, and conveys the urine to the allantoid membrane.

URAL, a river of Russia, which rises in mount Caucasus, and watering Orenburg, Uralsk, and Gurief, falls by three mouths into the Caspian sea. See the next article.

URALIAN COSSACS, a Tartar tribe that inhabit the Russian province of Orenburg, on the south side of the Ural. These Cossacs are descended from those of the Don; and are a valiant race. They profess the Greek religion; but there are dissenters from the established religion, whom the Russians called Roskolniki, or Separatists, and who style themselves Staroverski, or Old Believers. These consider the service of the established church as profane, and have their own priests and ceremonies. The Uralian Cossacs are all enthusiasts for the ancient ritual, and prize their beards almost equal to their lives. A Russian officer having ordered a number of Cossac recruits to be publicly shaved in the town of Yaitsk, in 1771, this wanton insult excited an insurrection, which was suppressed for a time; but, in 1773, the impostor, Pugatchef, having assumed the name of Peter III. appeared among them, and, taking advantage of this circumstance, roused them once more into open rebellion. This being suppressed by the defeat and execution of the impostor, in order to extinguish all remembrance of this rebellion, the river Yaik was called the Ural; the Yaik Cossacs were denominated Uralian Cossacs; and the town of Yaitsk was named Uralsk. These Cossacs are very rich, in consequence of their fisheries in the Caspian sea. Their principal fishery is for sturgeons and beluga, whose roe supplies large quantities of caviare; and the fish, chiefly salted and dried, afford a considerable article of consumption in the Russian empire.

URALSK, a town of Russia, in the government of Caucasus and province of Orenburg. It was formerly called Yaitsk (see the preceding article) and is seated on the river Ural, 375 miles N.N.E. of Astracan. Lon. 50. 10 E. Lat. 52. 0 N.

URANIA, in fabulous history, one of the Muses, daughter of Jupiter and Mnemosyne, who presided over astronomy. She was represented as a young virgin crowned with stars, holding a globe in her hands, and having many mathematical instruments placed round. (*Hesiod. Apollod.*). A sirname of Venus, the same as Celestial, supposed to preside over beauty and generation.

URANIA, in botany, a genus of the class hexandria, order monogynia. Calyxless; corol three-petalled; nectary two-leaved, with an additional bifid leaflet; capsule inferior, three-celled, many-seeded; seeds in two rows, covered with an aril. One species only, a Madagascar tree, with an undivided trunk.

URANITE, in mineralogy. See URANIUM.

URANITIC OCHRE. See URANIUM.

URANIUM, in mineralogy, a genus of the class metals. Dark-grey, inclining internally to a brown, with a slight lustre, soft, brittle; specific gravity 6·440; hardly fusible before the blowpipe, but with borax forming a brown and with microcosmic salt a grass-green glass; convertible into a yellow oxyd by the nitric acid. Three species.

1. U. ochraceum. Uranite. Uranites. Uranitic ochre. Yellow oxyd of uranium. Yellowish or green, of an earthy texture, entirely soluble in nitric acid, combined with a large portion of oxygen. Generally found on the surface of uranium sulphureum or pechblende in Cornwall, &c. of a lemon or brimstone yellow or green; it slightly stains the fingers, is meagre to the touch, hardly fusible before the blowpipe, but in a strong heat becomes black: specific gravity 3·243; consists of oxyd of uranium and oxygen.

2. U. chalcholithus. Chalcolit. Oxyd of uranite. Crystallized oxyd of uranium. Hardish, diaphonous, shining internally, of a foliated texture, entirely soluble in nitric acid. Found in Cornwall, near Eibenstock and Johanngeorgenstadt in Saxony, and near Reinbreidenbach in the electorate of Trieves, sometimes on the surface of other ores, sometimes in larger or less particles mixed with rocks of gneiss, garnet, or quartz, most commonly crystallized in cubes, square plates, eight-sided or six-sided prisms: colour emerald or grass-green, often inclining to silvery-white, or yellowish with a greenish-white streak: lustre sometimes perlaceous, sometimes metallic; soluble in nitric acid without effervescence, but insoluble and infusible by alkalies; consists of oxyd of uranium, carbonic acid; and, the green kind, of a little oxyd of copper.

3. U. sulphureum. Sulphurated uranite. Pechblende. Hardish, very ponderous, black, compact, shining internally. Found at Johanngeorgenstadt, in Saxony; either forming entire thin strata, alternating with other stratified minerals, or massive and dispersed; colour black, dark-grey, or blueish-black, with a darker streak, and opaque, black powder; texture conchoidal, very brittle; imperfectly soluble in sulphuric and muriatic acids, but perfectly in nitric and nitro-muriatic acids, giving the solution a vinous yellow; forming a grey opake slag with borax and soda, and a green glass with microcosmic salt: specific gravity 6·378 to 7·500: contains, according to Klaproth,

Uranium -	86·5
Sulphuret of lead -	60
Silex -	5
Oxyd of iron -	2·5
	154

The analysis of the ores of uranium is sufficiently simple. The only substances that have hitherto been found in natural mixture or combination with this metal are lead, iron, copper, sulphur, and silex. Of these the sulphur and silex are to be separated first by digestion in dilute nitric acid; and the other exotic materials from the metal thus far purified in the regular order of lead, copper, and iron.

The nitrat of uranium being boiled with caustic fixed alkali, the whole of the uranium will be precipitated as pure yellow oxyd.

The process by which Klaproth reduced this metal is the following: he mixed the yellow oxyd of uranium, precipitated from its solutions by an alkali, with linseed oil, in the form of a paste, and this being exposed to a strong heat, there remained a black powder, which had lost rather more than one-fourth of its weight. It was then exposed to the heat of a porcelain furnace, in a close crucible, and the oxyd was afterwards found in a coherent mass, but friable under the fingers, and reduced to a black shining powder. It decomposed nitric acid with effervescence. This black powder, covered with calcined borax, was for the second time exposed to a still stronger heat, by which a metallic mass was obtained, consisting of very small globules adhering together.

The affinity of the yellow oxyd for the acids is so considerable, that its salts are not decomposed by the addition of zinc or of any other metal.

The following vitrescent mixtures were made by Klaproth to ascertain the power of this oxyd as a colouring substance.

Silex	-	2 drachms,
Carb. potash	-	1 drachm,
Yellow oxyd	-	10 grs.

produces a clear light brown glass.

Silex	-	2 drachms,
Carb. soda	-	1 drachm,
Yellow oxyd	-	10 grs.

produces an opaque, blackish-grey glass.

Silex	-	2 drachms,
Glass of borax	-	2 drachms,
Yellow oxyd	-	20 grs.

produces a clear glass of a smoke-brown colour.

Silex	-	2 drachms,
Vitreous phosphoric acid (from bones)		2 drachms,
Yellow oxyd	-	20 grs.

produces an opaque apple-green glass like chrysoprase.

Vitreous phosphoric acid	-	2 drachms,
Yellow oxyd	-	10 grs.

produces a clear emerald-green glass.

The glass obtained, however, by the two last experiments was in some degree deliquescent.

The yellow oxyd when mixed with the common enamelling flux tinges porcelain of a deep orange-yellow.

The alloys of uranium are as yet wholly unknown.

URANOSCOPUS. Star-gazer. In zoology, a genus of the class pisces, order jugularia. Head large, depressed, rough; upper jaw shorter than the lower; gill-membrane with six papillous toothed rays; the covers with a membranaceous fringe; vent in the middle of the body. Two species.

1. U. scaber. Body smooth. Head large, square, mailed, with a bone sprinkled over with minute warts, and which terminates above in two, beneath in five spines; tongue thick, strong, short, covered with minute teeth; lips bearded with cirri; upper jaw with a double oval cavity within, lower covered with a membrane terminating in a long appendage; eyes vertical, approximate; pupil black, iris yellow; aperture of the gills very large; body covered with small scales, nearly square, as far as the vent, and afterwards round; lateral line, consisting of small, round, hollow dots, descending from the nape to the pectoral fins, and afterwards straight; fins with soft yellow rays, those of the ventral quadrifid, of the broad pectoral cleft at the tip, of the glossy-black anal and dorsal simple, of the caudal much branched; first dorsal fin bony. Inhabits the Mediterranean sea; frequents deep places near the shores; body above brown, cinereous at the sides, beneath white; feeds on smaller fishes and aquatic insects; sometimes sleeps; flesh good, but tough; length about a foot.

2. U. Japonicus. Back with a row of spinous scales. Head depressed, with recurvate prickles; ventral fins short. Inhabits the sea around Japan; half a foot long; body round, above yellow, beneath white.

URANUS, or OURANUS, the same as Cœlus, the most ancient of all the gods. He married Tithæa, or the Earth, by whom he had the Titans. His children conspired against him, because he confined them in the bosom of the earth, and his son Saturn mutilated him, and drove him from his throne.

URANUS, in astronomy, the name given, for the sake of analogy, to the primary planet discovered by Dr. Herschel. See ASTRONOMY, GEORGIUM SIDUS, and HERSCHEL.

URATS. Salts formed by a combination of uric acid with an alkali or earth. See URIC ACID.

URBA'NITY. *s.* (*urbanité*, French; *urbanitas*, Latin.) Civility; elegance; politeness; merriment; facetiousness (*Dryden*).

URBINO, a duchy of Italy, in the Ecclesiastical State, fifty-five miles long, and forty-five broad; bounded on the north by Romagna, north-east by the gulf of Venice, south-east and south by Ancona, and W. by Perugino and Tuscany. The air is not deemed wholesome, nor is the soil fertile. The chief production is silk, and game is plentiful.

URBINO, a city of Italy, capital of the duchy of Urbino, and an archbishop's see. The palace, where the dukes formerly resided, now belongs to the pope. The university contains a noble college and sixteen convents. Great quantities of fine earthen ware are made here; and it is famous for being the birthplace of the illustrious painter Raphael. It was taken by the French in 1796. It stands on a hill, between the rivers Metro and Foglia, 58 miles E. of Florence, and 120 N. of Rome. Lon. 12. 40 E. Lat. 43. 46 N.

URBINO (Raphael D'). See RAPHAEL.

URCEOLATE, in botany. Pitcher-shaped. Urceoli s. pelvis instar inflatus & undique gibbus. Bellying out like a pitcher. Applied to the calyx, corol, and nectary.

URCHIN, in zoology. See ECHINUS.

URCHIN, a term of slight anger to a child.

URE, a river in Yorkshire, which rises on the confines of Westmorland, flows by Middleham, Ripon, Boroughbridge, and Aldborough, and a little below joins the Swale, where the united stream forms the Ouse.

UREA, the constituent and characteristic matter of urine, which may be obtained by the following process: Evaporate by a gentle heat a quantity of human urine, voided six or eight hours after a meal, till it is reduced to the consistence of a thick syrup. In this state, when put by to cool, it concretes into a crystalline mass. Pour at different times upon this mass four times its weight of alcohol, and apply a gentle heat; a great part of the mass will be dissolved, and there will remain only a number of saline substances. Pour the alcohol solution into a retort, and distil by the heat of a sand-bath till the liquid, after boiling some time, is reduced to the consistence of a thick syrup. The whole of the alcohol is now separated, and what remains in the retort crystallizes as it cools. These crystals consist of the substance known by the name of urea.

Urea, obtained in this manner, has the form of crystalline plates crossing each other in different directions. Its colour is yellowish white: it has a fetid smell, somewhat resembling that of garlic or arsenic; its taste is strong and acrid, resembling that of ammoniacal salts; it is very viscid and difficult to cut, and has a good deal of resemblance to thick honey. When exposed to the open air, it very soon attracts moisture, and is converted into a thick brown liquid. It is extremely soluble in water; and during its solution a considerable degree of cold is produced. Alcohol dissolves it with facility, but scarcely in so large a proportion as water. The alcohol solution yields crystals much more readily on evaporation than the solution in water.

When nitric acid is dropt into a concentrated solution of urea in water, a great number of bright pearl-coloured crystals are deposited, composed of urea and nitric acid. No other acid produces this singular effect. The concentrated solution of urea in water is brown, but it becomes yellow when diluted with a large quantity of water. The infusion of nut-galls gives it a yellowish-brown colour, but causes no precipitate; neither does the infusion of tan produce any precipitate.

When heat is applied to urea, it very soon melts, swells up, and evaporates with an insupportably fetid odour. When distilled, there come over first benzoic acid, then carbonat of ammonia in crystals, some carbureted hydrogen gass, with traces of prussic acid and oil; and there remains behind a large residuum, composed of charcoal, muriat of ammonia, and muriat of soda. The distillation is accompanied with an almost insupportable fetid alliaceous odour. Two hundred and eighty parts of urea yield by distillation 200 parts of carbonat of ammonia, 10 parts of carbureted hydrogen gass, seven parts of charcoal, and 68 parts of benzoic acid, muriat of soda, and muriat of ammonia. These three last ingredients Fourcroy and Vauquelin consider as foreign substances, separated from the urine by the alcohol at the same time with the urea. Hence it follows that 100 parts of urea, when distilled, yield

92·027	carbonat of ammonia
4·608	carbureted hydrogen gass
3·225	charcoal
99·860	

Now 200 parts of carbonat of ammonia, according to Fourcroy and Vauquelin, are composed of 86 ammonia, 90 carbonic acid gass, and 24 water. Hence it follows that 100 parts of urea are composed of

39·5	oxygen
32·5	azot
14·7	carbon
13·3	hydrogen
100·0	

But it can scarcely be doubted that the water which was found in the carbonat of ammonia existed ready-formed in the urea before the distillation.

When the solution of urea in water is kept in a boiling heat, and new water is added as it evaporates, the urea is gradually decomposed, a very great quantity of carbonat of ammonia is disengaged, and at the same time acetic acid is formed, and some charcoal precipitates.

When a solution of urea in water is left to itself for some time, it is gradually decomposed. A froth collects on its surface; and air-bubbles are emitted which have a strong disagreeable smell, in which ammonia and acetic acid are distinguishable. The liquid contains a quantity of acetic acid. The decomposition is much more rapid if a little gelatine is added to the solution. In that case more ammonia is disengaged, and the proportion of acetic acid is not so great.

When the solution of urea is mixed with one-fourth of its weight of diluted sulphuric acid, no effervescence takes place; but, on the application of heat, a quantity of oil appears on the surface, which concretes upon cooling; the liquid which comes over into the receiver contains acetic acid, and a quantity of sulphat of ammonia remains in the retort dissolved in the undistilled mass. By repeated distillations, the whole of the urea is converted into acetic acid and ammonia.

When nitric acid is poured upon crystallized urea, a violent effervescence takes place, the mixture froths, assumes the form of a dark-red liquid, great quantities of nitrous gass, azotic gass, and carbonic acid gass are disengaged. When the effervescence is over, there remains only a concrete white matter, with some drops of reddish liquid. When heat is applied to this residuum, it detonates like nitrat of ammonia. Into a solution of urea, formed by its attracting moisture from the atmosphere, an equal quantity of nitric acid, of the specific gravity 1.460, diluted with twice its weight of water, was added; a gentle effervescence ensued: a very small heat was applied, which supported the effervescence for two days. There was disengaged the first day a great quantity of azotic gass and carbonic acid gass; the second day, carbonic acid gass; and at last nitrous gass. At the same time with the nitrous gass the smell of the oxyprussic acid of Berthollet was perceptible. At the end of the second day, the matter in the retort, which was become thick, took fire, and burnt with a violent explosion. The residuum contained traces of prussic acid and ammonia. The receiver contained a yellowish acid liquor, on the surface of which some drops of oil swam.

Muriatic acid dissolves urea, but does not alter it. Oxymuriatic acid gass is absorbed very rapidly by a diluted solution of urea; small whitish flakes appear, which soon become brown, and adhere to the sides of the vessel like a concrete oil. After a considerable quantity of oxymuriatic acid had been absorbed, the solution, left to itself, continued to effervesce exceedingly slowly, and to emit carbonic acid and azotic gass. After this effervescence was over, the liquid contained muriat and carbonat of ammonia.

Urea is dissolved very rapidly by a solution of potass or soda, and at the same time a quantity of ammonia is disengaged; the same substance is disengaged when urea is treated with barytes, lime, or even magnesia. Hence it is evident, that this appearance must be ascribed to the muriat of ammonia, with which it is constantly mixed. When pure solid potass is triturated with urea, heat is produced, a great quantity of ammonia is disengaged, the mixture becomes brown, and a substance is deposited, having the appearance of an empyreumatic oil. One part of urea and two of potass, dissolved in four times its weight of water, when distilled, gives out a great quantity of ammoniacal water; the residuum contains acetat and carbonat of potass.

When muriat of soda is dissolved in a solution of urea in water, it is obtained by evaporation, not in cubic crystals, its usual form, but in regular octahedrons. Muriat of ammonia, on the contrary, which crystallizes naturally in octahedrons, is converted into cubes by dissolving and crystallizing it in the solution of urea.

UREDO. (from *uro*, to burn.) An itching or burning sensation of the skin, which accompanies many diseases. The nettle rash is also so called.

Uredo, in botany, a genus of the class cryptogamia, order fungi. Fungus parasitical, consisting of mealy powder under the cuticle of plants; sometimes under the cuticle of leaves or stem; sometimes under that of the parts of fructification. Nine species, all indigenous to our country. The following are well entitled to notice.

1. U. frumenti. Linear-oblong, black-brown; well known, as to its effects, by the name of blight.

2. U. segetum. Black, in the spikelets of grasses. Equally well known, as to its effects, by the name of smut.

See the articles **Husbandry** and **Mucor**, under a particular species of which M. Wildenow has chosen to rank both these plants.

UREE, in chemistry, the basis of the uric ammonia; urine evaporated to the consistence of honey.

URENA, in botany, a genus of the class monadelphia, order polyandria. Calyx double; the outermost five-cleft; capsule five-celled, five-partible; the cells closed and one-seeded. Eight species, natives of the East or West Indies. The two following are cultivated.

1. U. lobata. Angular-leaved urena: rising with an upright stock, two feet high, and mallow-shaped flowers of a deep blue. A native of China.

2. U. sinuata. Cut-leaved urena. Suffruticosa: rising three feet, with small rose-coloured flowers. A native of India. Both are stove plants, and increased by seeds from their natural soils.

URETER. (ȣρητηρ, from ȣρον, urine.) The membranous canal which conveys the urine from the kidney to the urinary bladder; at its superior part it is considerably the largest, occupying the greatest portion of the pelvis of the kidney; it then contracts to the size of a goose-quill, and descends over the psoas magnus muscle and large crural vessels into the pelvis, in which it perforates the urinary bladder very obliquely. Its internal surface is lubricated with mucus, to defend it from the irritation of the urine in passing.

URETHRA. (ȣρηθρα, from ȣρον, the urine, because it is the canal through which the urine passes.) A membranous canal running from the neck of the bladder through the inferior part of the penis to the extremity of the glans penis, in which it opens by a longitudinal orifice, called the meatus urinarius. In this course it first passes through the prostate gland, which portion is distinguished by the name of the prostatical urethra; it then becomes much dilated, and is known by the name of the bulbous part, in which is situated a cutaneous eminence called the caput gallinaginis or verumontanum, around which are ten or twelve orifices of the excretory ducts of the prostate gland, and two of the spermatic vessels. The remaining part of the urethra contains a number of triangular mouths, which are the lacunæ, or openings of the excretory ducts of the mucous glands of the urethra.

URETRIS. Medicines which promote a discharge of urine.

To URGE. *v. a.* (*urgeo*, Latin.) 1. To incite; to push; to press by motives (*Tillotson*). 2. To provoke; to exasperate (*Shakspeare*). 3. To follow close, so as to impel (*Pope*). 4. To labour vehemently; to do with eagerness or violence (*Pope*). 5. To press; to enforce (*Dryden*). 6. To press as an argument (*Shakspeare*). 7. To importune; to solicit (*Spenser*). 8. To press in opposition, by way of objection (*Tillotson*).

To URGE. *v. n.* To press forward (*Donne*).

URGEL, a town of Spain, in Catalònia, and a bishop's see. It is seated on the Segra, in a fertile plain, surrounded by mountains planted with vineyards, 78 miles N.N.W. of Barcelona. Lon. 1. 28 E. Lat. 42. 24 N.

U'RGENCY. *s.* (from *urgent.*) Pressure of difficulty or necessity (*Swift*).

U'RGENT. *a.* (*urgent*, French; *urgens*, Latin.) 1. Cogent; pressing; violent (*Raleigh*). 2. Importunate; vehement in solicitation (*Exodus*).

U'RGENTLY. *ad.* Cogently; violently; vehemently; importunately (*Harvey*).

U'RGER. *s.* (from *urge.*) One who presses; importuner (*Swift*).

URI, a canton of Swisserland, 30 miles long and 12 broad; bounded on the N. by the canton of Schweitz and the Walstadter See, E. by the cantons of Grisons and Glarus, S. by the bailiwics of Italy, and W. by the cantons of Underwalden and Bern. Altorf is the capital. See SCHWEITZ.

URIC ACID. Uric or lithic acid was discovered by Scheele in 1776. It is the most common constituent of urinary calculi, and exists also in human urine. That species of calculus which resembles wood in its colour and appearance is composed entirely of this substance. It was called at first lithic acid; but this name, in consequence of the remarks made by Dr. Pearson on its impropriety, has been laid aside, and that of uric acid substituted in its place.

Uric acid in this state has a brown colour; it is hard, and crystallized in small scales. It has neither taste nor smell, is insoluble in cold water, but soluble in 360 parts of boiling water. The solution reddens vegetable blues, especially the tincture of turnsol. A great part of the acid precipitates again as the water cools. It combines readily with alkalies and earths; but the compound is decomposed by every other acid. Muriatic acid has no action on it, neither has sulphuric acid while cold, but when assisted by heat it decomposes it entirely.

When triturated with potass or soda, it forms a saponaceous paste, very soluble in water when there is an excess of alkali, but sparingly when the alkali is neutralized. The urat of potass or of soda is nearly tasteless. The last is found crystallized, constituting gouty concretions. Ammonia does not dissolve uric acid, but it combines with it, and forms a salt not more soluble than the pure acid, and resembling it in its external characters. Neither does uric acid dissolve in lime-water; the alkaline carbonats have no action whatever on it. Hence the only urat which has hitherto been detected is urat of ammonia, or uric acid united with volatile alkali.

Nitric acid dissolves it readily; the solution is of a pink-colour, and has the property of tinging animal substances, the skin for instance, of the same colour. When this solution is boiled, a quantity of azotic gass, carbonic acid gass, and of prussic acid, is disengaged. When oxymuriatic acid gass is made to pass into water containing this acid suspended in it, the acid assumes a gelatinous appearance, then dissolves; carbonic acid gass is emitted, and the solution yields by evaporation muriat of ammonia, superoxalat of ammonia, muriatic acid, and malic acid.

When uric acid is distilled, about a fourth of the acid passes over a little altered, and is found in the receiver crystallized in plates; a few drops of thick oil make their appearance; $\frac{1}{8}$th of the acid of concrete carbonat of ammonia, some prussiat of ammonia, some water, and carbonic acid, pass over; and there remains in the retort charcoal, amounting to about $\frac{1}{80}$th of the weight of the acid distilled.

These facts are sufficient to shew us that uric acid is composed of carbon, azot, hydrogen, and oxygen; and that the proportion of the two last ingredients is much smaller than of the other two.

URIM and THUMMIM, among the ancient Hebrews, a certain oracular manner of consulting God, which was done by the high priest dressed in his robes, and having on his pectoral or breast-plate. Various have been the sentiments of commentators concerning the urim and thummim. Josephus, and several others, maintain, that it meant the precious stones set in the high-priest's breast-plate, which by extraordinary lustre made known the will of God to those who consulted him. Spenser believes that the urim and thummim were two little golden figures shut up in the pectoral, as in a purse, which gave responses with an articulate voice. In short, there are as many opinions concerning the urim and thummim as there are particular authors that wrote about them. Broughton thinks, that the words urim and thummim signify some divine virtue and power annexed to the breast-plate of the high-priest, by which an oraculous answer was obtained from God when he was consulted by the high-priest; and that this was called urim and thummim, to express the clearness and perfection which these oracular answers always carried with them; for urim signifies light, and thummim perfection: these answers not being imperfect and ambiguous, like the heathen oracles, but clear and evident. The use made of the urim and thummim was to consult God in difficult cases relating to the whole state of Israel; and sometimes in cases relating to the king, the sanhedrim, the general of the army, or some other great personage.

A very ingenious writer (we suspect, a female one) in the Christian Observer is disposed to consider the names of the twelve tribes of Israel engraven on the twelve precious stones as what alone was meant by the lustre and perfection, the urim and the thummim, which was appointed to be put in the breast-plate of judgment; urim denoting the glory of the visible church, as bearing the light of truth (signified by the lustre of the precious stones); and thummim, the unity of all its parts, constituting its perfection, signified by all the tribes of Israel engraven on these stones, and, as it were, enshrined in their glory.

For a fuller explication, together with striking practical reflections in favour of unity of spirit, deduced from the circumstance that the enquiry by urim and thummim ceased about the time of the defection of the ten tribes, see Christian Observer, vol. xi. p. 137.

URINA. (ουρον, from ορουω, to rush out.) See URINE.

U'RINAL. *s.* (*urinal*, French.) A bottle in which urine is kept for inspection.

URINARIA. (so called from producing a copious evacuation of urine.) See LINARIA.

URINARY BLADDER. Vesica urinaria. A muscular sac, situated in the cavity of the pelvis; in men between the pubes and rectum; and in women between the pubes and uterus; which receives the urine, retains it a certain time, and then expels it. Its external coat is from the peritonæum; internally it is covered with a mucous membrane, which separates mucus from the blood to lubricate and defend it from the acrimony of the urine. Anatomists have distinguished this bladder into a fundus, body, and neck. It has arteries from the hypogastric and hæmorrhoidal; nerves from the intercostal and sacral; and its veins empty themselves into the hypogastric veins.

URINARY CALCULUS, a hard round concretion frequently formed in the bladder of many animals, and especially of man, stony in appearance, and producing the most dreadful paroxysms of pain and general disease, for which no radical cure has hitherto been discovered, except a very serious surgical operation.

The stone in the bladder has been examined with minute attention by several most excellent chemists, who have been stimulated by the additional hope of finding a solvent which might remove it altogether, or at least mitigate the severity of the symptoms which it produces: and it was early discovered that a considerable benefit was derived from the internal use of alkaline medicines, taken in as large quantity as could be borne, and for a length of time.

The first and by far the most important discovery relating to the chemical nature of calculus was made by Scheele in 1776, who obtained from it a large proportion of a peculiar crystallizable substance till then unknown, which had all the properties of a very weak acid, particularly in reddening litmus, and neutralizing alkaline and earthy bases. This substance was afterwards denominated lithic acid and more lately uric acid. The discovery gave a new interest to the examination of calculi, and many additional observations have been added by other chemists. Bergman, who was employed on the same subject at the same time with Scheele, gave some further remarks on its habitude with acids. Dr. Wollaston has shown that the gouty calculus, or chalkstone, as it is generally called, consists of the lithic acid neutralized by soda, and has also added largely to our knowledge of the varieties of urinary calculi, by discovering that phosphat of ammonia and magnesia is the composition of one species; that pure phosphat of lime forms another species; and that the variety known to surgeons by the name of the mulberry calculus, consists of phosphat and oxalat of lime. Dr. Pearson, in analyzing 200 specimens of calculi, has found the lithic acid of Scheele, in all but six, of very varying proportions, but he considers this peculiar substance rather as an animal oxyd than an acid. Brugnatelli and other chemists, whom it is needless to enumerate, have thrown some further light on this subject; and lastly, a long and most elaborate series of experiments has been made by Fourcroy and Vauquelin, which gives the fullest and most comprehensive view of the subject.

From all these authorities we may collect the following particulars:

The greater number of urinary calculi or stones in the bladder are of a round or oval shape, varying in size from that of a bean to the bigness of a pullet's egg; brittle, hard enough to take a good polish: when sawn through obviously composed of concentric laminæ formed round a small nucleus; of a dull yellow to a red gravelly colour, often interspersed with blood-red spots; and the specific gravity of even the heaviest does not quite amount to 2. These are the calculi into which the lithic or uric acid enters as a constituent part, but even in these there is a considerable variety of texture and appearance, the surface being sometimes smooth and polished, sometimes rough with small protuberances, and occasionally interspersed with crystals, which latter are the ammoniaco-magnesian phosphat.

The mulberry calculi, as they are called, are distinguished by their mammillated and usually polished surface, resembling that of the mulberry, and their colour, too, is generally much darker. These, as before mentioned, have been found by Dr. Wollaston to consist chiefly of oxalat of lime. The analysis of this and of the other rarer varieties we shall return to, after describing the common uric calculus, which is particularly distinguished by its lamellar texture, its toughness, and the uniform brown yellow colour of the inner part, a good deal resembling petrified wood in appearance.

When this calculus is boiled for some time in water, a solution is obtained holding about 8 grs. in 5 oz. of liquid which reddens litmus paper. As it grows cold the greatest part of the dissolved portion of calculus separates again in the form of fine crystals; and it is these which constitute the pure lithic or uric acid.

The muriatic acid has no effect on this calculus. Concentrated sulphuric acid dissolves it by the assistance of heat. But the most characteristic effects are those produced by the nitric acid. When this acid, somewhat dilute, is boiled on the calculus, the latter is entirely dissolved, red vapours arise, and a good deal of carbonic acid gass is produced. The solution is acid though more of the calculus is added than the nitric acid can dissolve; it is of an orange-yellow colour, which reddens by evaporation, and produces rose-coloured spots on the skin about half an hour after it has been applied. This solution is not precipitated by any caustic alkali, but when an excess of it is added, an alkaline solution is produced which is of a rose colour when heated, and tinges the skin equally with the acid solution.

Calculus of phosphat of ammonia with magnesia.—A species of urinary calculus exists which was first noticed by Mr. Tennant to differ from the common calculi in being fusible under the blowpipe into an opake white glass, instead of being almost wholly consumed: whence this able chemist conjectured it to be phosphat of lime united with some other phosphoric salt. This conjecture was found to be almost exact by the subsequent analysis of Dr. Wollaston, who ascertained its composition to be a triple salt composed of phosphoric acid, ammonia, and magnesia. This fusible calculus is always whiter and harder than the common calculi, and generally has the appearance of sparkling crystals, which are sometimes voided in the form of a white sand.

Phosphat of lime calculus.—The surface of this is generally of a pale brown, and so smooth as to appear polished. When sawn through it is found very regularly laminated, and the lamina in general adhere so slightly to each other as to separate with ease into concentric crusts. Sometimes the laminæ are striated in a direction perpendicular to the surface, giving a crystallized fibrous texture. This calculus dissolves totally and slowly in nitric or muriatic acid, and the muriatic solution crystallizes on evaporation. The phosphat of lime is precipitated by ammonia. Before the blowpipe this calculus becomes at first slightly charred, owing to the burning of some gelatin or other uniting animal tincture with which it is intermixed; but it soon becomes perfectly white, and at last fuses into an opake globule.

Calculus with oxalat of lime. Mulberry calculus.—This calculus is the hardest and heaviest of all these substances. Its colour is generally of a dark chocolate brown externally, and irregularly grey within. Its surface is covered with tubercles or rounded knobs, like the mulberry; and when sawn through it gives the same smell as bone or ivory. It is soluble with difficulty in acids; the caustic alkalies have no action upon it. When calcined in the open air it blackens, and gives an ammoniacal smell, and the other products of soft animal matter; and a white powder finally remains, which consists of quick-lime and phosphat of lime.

Under the researches of MM. Foucroy and Vauquelin urinary calculi have been divided and arranged into the following twelve distinct species.

1. Calculi of uric acid alone.
2. Urat of ammonia.
3. Oxalat of lime. Mulberry calculi.
4. Uric acid, and earthy phosphats, in two distinct layers.
5. The same intermixed.
6. Urat of ammonia, and earthy phosphats, in distinct layers.
7. The same intermixed.
8. Phosphat of lime and ammoniaco-magnesian phosphat.
9. Nucleus oxalat of lime, and covered with a thick coating of uric acid.
10. A nucleus of oxalat of lime, invested with earthy phosphats.
11. Uric acid, or urat of ammonia, earthy phosphats and oxalat of lime.
12. Uric acid, urat of ammonia, earthy phosphats and silex.

This last is made a distinct species, on account of the silex, which however is rare.

The above classification is perhaps too complicated; but it will at least serve to show the very various nature of urinary calculi and the total absence of any one common chemical property: and it hence demonstrates to us the impossibility of finding a single solvent which may apply to every case of this formidable disease.

U'RINATIVE. *a.* Working by urine; provoking urine (*Bacon*).

URINA'TOR. *s.* (*urinator*, Latin.) A diver (*Ray*).

URINE. (ȣρον, from ȣρεω, to rush out.) The saline liquid secreted in the kidneys, and dropping down from them, guttatim, through the ureters into the cavity of the urinary bladder.

The secretory organ is composed of the arterious vessels of the cortical substance of the kidneys, from which the urine passes through the uriniferous tubuli and renal papillæ, into the renal pelvis, whence it flows drop by drop through the ureters into the cavity of the urinary bladder; where it is detained some hours, and, at length, when abundant, eliminated through the urethra. The urine of an healthy man is divided in general into,

1. Crude, or that which is emitted one or two hours after eating; this is for the most part aqueous, and often vitiated by some foods, and,

2. Cocted, which is eliminated some hours after the digestion of the food, as that which is emitted in the morning after sleeping. This is generally in smaller quantity, thicker, more coloured, more acrid than at any other time. Of such cocted urine the colour is usually citrine, and not unhandsome. The degree of heat agrees with that of the blood; hence in atmospheric air it is warmer, as is perceived if the hand be washed with urine. The specific gravity is greater than water, and that emitted in the morning is always heavier than at any other time. The smell of fresh urine is not disagreeable. The taste is saltish and nauseous. The consistence is somewhat thicker than water. The quantity depends on that of the liquid drink, its diuretic nature, and the temperature of the air.

Properties of healthy urine.—1. Fresh urine does not appear to be of an acid nor an alkaline nature; for it does not change the syrup of violets. 2. Mixed with fixed alkali and aqua calcis, it eructates volatile alkali. 3. Urine is neither coagulated by alcohol of wine, nor mineral acor: hence it is an aqueous liquor, not a serous one. 4. When cold it is gradually rendered more turbid, and deposits a sediment, which is again dissolved if the urine be made warm. 5. Evaporated to the thickness of honey, it becomes red, bitter, very acrid, but not alkaline, and is called sapa of urine; which, when evaporated to dryness, is called extract of urine. 6. Urine distilled to the consistence of honey, and suffered to crystallize, deposits sal digestivus, microcosmic salt, and phosphorated and mineral alkali.

The changes of urine in the air.—Preserved in an open vessel it remains pellucid for some time, and at length there is perceived at the bottom a nubecula, or little cloud, consolidated as it were from the gluten. This nubecula increases by degrees, occupies all the urine, and renders it opake. The natural smell is changed into a putrid cadaverous one; and the surface is now generally covered with a cuticle, composed of very minute crystals. At length the urine regains its transparency, and the colour is changed from a yellow to a brown; the cadaverous smell passes into an alkaline, and a brown grumous sediment falls to the bottom, filled with white particles, deliquescing in the air, and so conglutinated as to form, as it were, little soft calculi.

Thus two sediments are distinguishable in the urine; the one white and gelatinous, and separated in the beginning; the other brown and grumous, deposited by the urine when putrid.

Spontaneous degeneration.—Of all the fluids of the body, the urine first putrefies. In summer, after a few hours, it becomes turbid and sordidly black, then deposits a copious sediment, and exhales a fetor like that of putrid cancers, which at length becomes cadaverous. Putrid urine effervesces with acids, and if distilled, gives off, before water, an urinous volatile spirit.

No liquor in the human body, however pure, is so variable in respect to quantity and quality as the urine, for it varies,

1. In respect to age: in the fetus it is inodorous, insipid, and almost aqueous; but as the infant grows it becomes more acrid and fetid, and in old age more particularly so.

2. In respect to drink: it is secreted in greater quantity, and of a more pale colour, from cold and copious draughts. It becomes green from an infusion of Chinese tea, or the use of the pulp of cassia.

3. In respect to food: from eating the heads of asparagus, or olives, it contracts a peculiar smell: from the fruit of the opuntia it becomes red, and from fasting, turbid.

4. In respect to medicines: from the exhibition of rhubarb-root, it becomes yellow; and from turpentine, a violet colour.

5. In respect to the time of the year: in the winter the urine is more copious and aqueous; but in the summer, from the increased transpiration, it is more sparing, higher coloured, and so acrid, that it sometimes becomes strangurious. The climate induces the same difference.

6. In respect to the muscular motion of the body: it is secreted more sparingly, and concentrated by motion; and is more copiously diluted, and rendered more crude, by rest.

7. In respect of the affection of the mind: thus fright makes the urine pale.

Use.—The urine is an excrementitious fluid, like lixivium, by which the human body is not only liberated from the superfluous water, but also from the superfluous salts and animal earth, and is defended from corruption.

Lastly, The vis medicatrix naturæ sometimes eliminates many morbid and acrid substances with the urine, as may be observed in fevers, dropsies, &c.

No animal substance has attracted more attention than this, both on account of its supposed connection with various diseases, and on account of the singular products obtained from it. In general, healthy urine is a transparent liquid of a light amber colour, an aromatic smell, and a disagreeable bitter taste. Its specific gravity varies, according to Mr. Cruikshank, from 1.005 to 1.033. When it cools, the aromatic smell leaves it, and is succeeded by another, well known by the name of urinous smell. This smell is succeeded in two or three days by another, which has a considerable resemblance to that of sour milk. This smell gradually disappears in its turn, and is succeeded by a fetid alkaline odour.

Urine reddens paper stained with turnsole and with the juice of radishes, and therefore contains an acid.

If a solution of ammonia is poured into fresh urine, a white powder precipitates, which has the properties of phosphat of lime. The presence of this substance in urine was first discovered by Scheele. If lime-water is poured into urine, phosphat of lime precipitates in greater abundance than when ammonia is used; consequently urine contains phosphoric acid. Thus we see that the phosphat of lime is kept dissolved in urine by an excess of acid, or it is in the state of super-phosphat. This also was first discovered by Scheele. This substance is most abundant in the urine of the sick. Berthollet has observed, that the urine of gouty people is less acid than that of people in perfect health. The average quantity of phosphat of lime in healthy urine is, as Cruikshank has ascertained, about $\frac{1}{900}$ of the weight of the urine.

If the phosphat of lime precipitated from urine is examined, a little magnesia will be found mixed with it. Fourcroy and Vauquelin have ascertained that this is owing to a little phosphat of magnesia which urine contains, and which is decomposed by the alkali or lime employed to precipitate the phosphat of lime.

Proust informs us that carbonic acid exists in urine, and that its separation occasions the froth which appears during the evaporation of urine. Fourcroy and Vauquelin, on the other hand, consider this acid as formed during the evaporation, by the decomposition of the urea. The observations of Proust confirm those which had been made by Priestley and Percival.

Proust has observed, that urine kept in new casks deposits small crystals, which effloresce in the air and fall to powder. These crystals possess the properties of carbonat of lime. Hence we must conclude that urine contains carbonat of lime; a very extraordinary fact, if we reflect that super-phosphat of lime is also present.

When fresh urine cools, it often lets fall a brick-coloured precipitate, which Scheele first ascertained to be crystals of uric acid. All urine contains this acid, even when no sensible precipitate appears when it cools. For if a sufficient quantity of clear and fresh urine is evaporated to $\frac{1}{178}$ of its weight, a subtle powder precipitates to the bottom, and attaches itself in part very firmly to the vessel. This part may be dissolved in pure alkali, and precipitated again by acetic acid. It exhibits all the properties of uric acid. The fact is, that the precipitate which usually falls when urine cools consists chiefly of phosphat of lime and uric acid. It may be dissolved in diluted nitric acid. If the solution is heated and evaporated to dryness, it assumes a fine rose-colour if uric acid is present. The proportion of uric acid varies considerably in urine. It crystallizes in small red prisms, partly on the surface, if urine is mixed with some nitric acid, and left exposed to the air.

During intermittent fevers, and especially during diseases of the liver, a copious sediment of a brick-red colour is deposited from urine. This sediment is the rosacic acid of Proust. Scheele considered this sediment as uric acid mixed with some phosphat of lime; and the same opinion has been entertained by other chemists: but Proust affirms that it consists chiefly of a different substance, to which he has given the name of rosacic acid from its colour, mixed with a certain proportion of uric acid and phosphat of lime. This rosacic acid, he informs us, is distinguished from the uric by the facility with which it dissolves in hot water, the violet precipitate which it occasions in muriat of gold, and by the little tendency which it has to crystallize.

If fresh urine is evaporated to the consistence of a syrup, and muriatic acid is then poured into it, a precipitate appears which possesses the properties of benzoic acid. Scheele first discovered the presence of benzoic acid in urine. He evaporated it to dryness, separated the saline part, and applied heat to the residuum. The benzoic acid was sublimed, and found crystallized in the receiver. Considerable quantities of benzoic acid may thus be obtained from the urine of horses and cows, where it is much more abundant than in human urine. In human urine it varies from $\frac{1}{1000}$ to $\frac{1}{10000}$ of the whole. Proust affirms that the acid obtained by Scheele's process is not the benzoic, but another possessed of similar properties; but differing in this circumstance, that nitric acid decomposes it, whereas it only whitens benzoic acid.

When an infusion of tan is dropt into urine, a white precipitate appears, having the properties of the combination of tan and albumen, or gelatin. Urine therefore contains albumen or gelatin. These substances had been suspected to be in urine, but their presence was first demonstrated by Seguin, who discovered the above method of detecting them. Their quantity in healthy urine is very small. Cruikshank found that the precipitate afforded by tan in healthy urine amounted to $\frac{1}{240}$th part of the weight of the urine. It is to these substances that the appearance of the cloud, as it is called, or the mucilaginous matter, which is sometimes deposited as the urine cools, is owing. It is probable that healthy urine contains only gelatin, and not albumen, though the quantity is too small to admit of accurate examination; but in many diseases the quantity of these matters is very much increased. The urine of dropsical people often contains so much albumen, that it coagulates not only on the addition of acids, but even on the application of heat. In all cases of impaired digestion, the albuminous and gelatinous part of urine is much increased. This forms one of the most conspicuous and important distinctions between the urine of those who enjoy good and bad health.

If urine is evaporated by a slow fire to the consistence of a thick syrup, it assumes a deep brown colour, and exhales a fetid ammoniacal odour. When allowed to cool, it concretes into a mass of crystals, composed of all the component parts of urine. If four times its weight of alcohol is poured upon this mass at intervals, and a slight heat applied, the greatest part of it is dissolved. The alcohol, which has acquired a brown colour, is to be decanted off, and distilled in a retort in a sand-heat, till the mixture has boiled for some time, and acquired the consistence of a syrup. By this time the whole of the alcohol has passed off; and the matter, on cooling, crystallizes in quadrangular plates which intersect each other. This substance is urea, which composes $\frac{19}{20}$ of the urine, provided the watery part is excluded. To this substance the taste and smell of urine are owing. It is a substance which characterizes urine, and constitutes it what it is, and to which the greater part of the very singular phenomena of urine is to be ascribed. See **Urea.**

It may be detected by evaporating urine to the consistence of a syrup, and pouring into it concentrated nitric acid. Immediately a great number of white shining crystals appear in the form of plates very much resembling crystallized boracic acid. These crystals are urea combined with nitric acid.

The quantity of urea varies exceedingly in different urines. In the urine voided soon after a meal, very little of it is to be found, and scarcely any at all in that which hysterical patients void during a paroxysm.

According to Fourcroy and Vauquelin, the colour of urine depends upon the urea: the greater the proportion of urea, the deeper the colour. But Proust has detected a resinous matter in urine similar to the resin of bile; and to this substance he ascribes the colour of urine. If urine, evaporated to the consistence of an extract, is mixed with sulphuric acid and distilled, this resin, he informs us, separates during the distillation. What is first obtained is soft, but the last portions are in the state of a dry powder. The consistence and colour of this resin resemble castor; it is very soluble in alcohol, and precipitated from its solution by water: but it is also soluble in water; and, according to Proust, is the resin of bile, somewhat modified by its passage through the urinary organs.

If urine is slowly evaporated to the consistence of a syrup, a number of crystals make their appearance on its surface: these possess the properties of muriat of soda. Urine therefore contains muriat of soda. It is well known that muriat of soda crystallizes in cubes; but when obtained from urine it has the form of octahedrons. This singular modification of its form is owing to the action of urea. It has been long known that urine saturated with muriat of soda deposits that salt in regular octahedrons.

The saline residuum which remains after the separation of urea from crystallized urine by means of alcohol has been long known under the names of fusible salt of urine and microcosmic salt. Various methods of obtaining it have been given by chemists; from Boerhaave, who first published a process, to Rouelle and Chaulnes, who gave the method just mentioned. If the saline mass is dissolved in a sufficient quantity of hot water, and allowed to crystallize spontaneously in a close vessel, two sets of crystals are gradually deposited. The lowermost set has the figure of flat rhomboidal prisms; the uppermost, on the contrary, has the form of rectangular tables. These two may be easily separated by exposing them for some time to a dry atmosphere. The rectangular tables effloresce and fall to powder, but the rhomboidal prisms remain unaltered.

When these salts are examined, they are found to have the properties of phosphats. The rhomboidal prisms consist of phosphat of ammonia united to a little phosphat of soda; the rectangular tables, on the contrary, are phosphat of soda united to a small quantity of phosphat of ammonia. Urine, then, contains phosphat of soda and phosphat of ammonia.

When urine is cautiously evaporated, a few cubic crystals are often deposited among the other salts; these crystals have the properties of muriat of ammonia. Now the usual form of the crystals of muriat of ammonia is the octahedron. The change of its form in urine is produced also by urea. This salt is obtained in greater abundance when the crystals of urea obtained from the alcohol solution are distilled.

When urine is boiled in a silver bason it blackens the bason; and if the quantity of urine is large, small crusts of sulphuret of silver may be detached. Hence we see that urine contains sulphur. This sulphur exhales along with the carbonic acid when the urine putrefies; for the fumes which separate from urine in that state blacken paper stained with acetat of lead.

Urine, then, contains the following substances:

1. Water,
2. Phosphoric acid,
3. Phosphat of lime,
4. Phosphat of magnesia,
5. Carbonic acid,
6. Carbonat of lime,
7. Uric acid,
8. Rosacic salt,
9. Benzoic acid,
10. Gelatin and albumen,
11. Urea,
12. Resin,
13. Muriat of soda,
14. Phosphat of soda,
15. Phosphat of ammonia,
16. Muriat of ammonia,
17. Sulphur.

These are the only substances which are constantly found in healthy urine; but it contains also occasionally other substances. Very often muriat of potash may be distinguished among the crystals which form during its evaporation. The presence of this salt may always be detected by dropping cautiously some tartaric acid into urine. If it contains muriat of potash, there will precipitate a little tartar, which may easily be recognized by its properties.

Urine sometimes also contains sulphat of soda, and even sulphat of lime. The presence of these salts may be ascertained by pouring into urine a solution of muriat of barytes; a copious white precipitate appears, consisting of the barytes combined with phosphoric acid, and with sulphuric acid if any is present. This precipitate must be treated with a sufficient quantity of muriatic acid. The phosphat of barytes is dissolved, but the sulphat of barytes remains unaltered.

Such are the properties of human urine in a state of health: but this excretion is singularly modified by disease; and the changes to which it is liable have attracted the attention of physicians in all ages, because they serve in some measure to indicate the state of the patient and the progress of the disease under which he labours. The following are the most remarkable of these changes that have been observed:

1. In inflammatory diseases the urine is of a red colour, and peculiarly acrid; it deposits no sediment on standing, but with oxymuriat of mercury it yields a copious precipitate.

2. During jaundice the urine has an orange-yellow colour, and communicates the same tint to linen. Muriatic acid renders this urine green, and thus detects the presence of a little bile.

3. About the end of inflammatory diseases the urine becomes abundant, and deposits a copious pink-coloured sediment, composed of rosacic acid, a little phosphat of lime, and uric acid.

4. During hysterical paroxysms, the urine usually flows abundantly. It is limpid and colourless, containing much salt, but scarcely any urea or gelatin.

5. Mr. Berthollet observed that the urine of gouty persons contains usually much less phosphoric acid than healthy urine. But during a gouty paroxysm it contains much more phosphoric acid than usual; though not more than constantly exists in healthy urine.

6. In general dropsy, the urine is loaded with albumen, and becomes milky, or even coagulates, when heated; or at least when acids are mixed with it. In dropsy from diseased liver, no albumen is present, the urine is scanty, high-coloured, and deposits the pink-coloured sediment.

7. In dyspepsia, the urine always yields a copious precipitate with tan, and putrefies rapidly.

8. The urine of rickety patients is said to be loaded with phosphat of lime, or, according to others, with oxalat of lime.

9. In diabetes, the urine is sweet-tasted and often loaded with saccharine matter. In one case, the urine emitted daily by a diabetic patient, according to the experiments of Cruikshank, contained 29 ounces of sugar.

The urine of other animals differs considerably from that of man. For the analysis of the urine of quadrupeds hitherto made, we are chiefly indebted to Rouelle junior. The following facts have been ascertained by that chemist, and by the late experiments of Fourcroy and Vauquelin

I. The urine of the horse has a peculiar odour: after exercise it is emitted thick and milky; at other times it is transparent, but becomes muddy soon after its emission. When exposed to the air, its surface becomes covered with a crust of carbonat of lime. It gives a green colour to syrup of violets, and has the consistence of mucilage. The following are its constituents as estimated by Fourcroy and Vauquelin from their expe- ments:

Carbonat of lime . . .	0.011
Carbonat of soda . . .	0.009
Benzoat of soda . . .	0.024
Muriat of potash . . .	0.009
Urea	0.007
Water and mucilage . .	0.940
	1.000

From the late experiments of Mr. Giese, we learn that the quantity of benzoat of soda varies considerably in the urine of horses. In some specimens he found it in abundance, and easily precipitated by muriatic acid. In others there was little or none. He could detect no benzoic acid in the food of horses. Hence he considers it as formed within the animal, and he thinks that it appears only in cases of disease.

II. The urine of the cow has a strong resemblance to that of the horse; it has nearly the same odour, and the same mucilaginous consistence. It tinges syrup of violets green, and deposits a gelatinous matter. On standing, small crystals are formed on its surface. It contains, according to Rouelle,

1. Carbonat of potash,
2. Sulphat of potash,
3. Muriat of potash,
4. Benzoic acid,
5. Urea.

III. The urine of the camel was also examined by Rouelle. Its odour resembles that of the urine of the cow; its colour is that of beer; it is not mucilaginous, and does not deposit carbonat of lime. It gives a green colour to syrup of violets, and effervesces with acids like the urine of the horse and cow. Rouelle obtained from it,

1. Carbonat of potash,
2. Sulphat of potash,
3. Muriat of potash,
4. Urea.

IV. The urine of the rabbit has been lately analysed by Vauquelin. When exposed to the air, it becomes milky, and deposits carbonat of lime. It gives a green colour to syrup of violets, and effervesces with acids. That chemist detected in it the following substances:

1. Carbonat of lime,
2. Carbonat of magnesia,
3. Carbonat of potash,
4. Sulphat of potash,
5. Sulphat of lime,
6. Muriat of potash,
7. Urea,
8. Gelatin,
9. Sulphur.

V. Vauquelin has also made some experiments on the urine of the guinea-pig, from which it appears that it resembles the urine of the other quadrupeds. It deposits carbonat of lime, gives a green colour to syrup of violets, and contains carbonat and muriat of potash, but no phosphat nor uric acid.

Thus it appears that the urine of the graminivorous quadrupeds agrees with the human in containing urea, but differs from it materially in being destitute of phosphoric acid, phosphats, and uric acid.

Vauquelin has also examined the urine of various other animals, and the results we shall give in his own words:

"The urines of the lion and tiger are perfectly similar: they have also some resemblance to that of man, but they differ in some essential points.

"First difference: they are alkaline, even at the instant of being voided; the urine of a man in health is, on the contrary, always acid.

"It is to the presence of the ammonia developed in these urines that we ought to ascribe the strong and disagreeable smell which they diffuse, even when in the act of issuing from the bladder of this class of animals.

"Second difference: they do not contain any uric acid, nor any combination of this acid with the alkalies. At least, there was no sensible trace when the experiment was four times repeated.

"The defect of uric acid in these urines was the more remarkable, as I used to ascribe its formation to animal food.

"The third difference exhibited by the urine of the lion and the royal tiger from that of man was the almost total absence of phosphat of lime.

"This is what might be naturally expected, since this salt cannot be dissolved in water except by means of a superabundance of acid, and the urine in question is on the contrary alkaline.

"It would nevertheless seem that the kidneys of these animals separate a certain quantity of this salt from the blood; for I found slight traces of it in these urines; and ammonia is formed in the bladder only, where probably it precipitates phosphat of lime: and this is without doubt the reason that the urine of these animals issues from the bladder almost always in a turbid state.

"If, according to this, we ever find calculi in the bladders of these animals, they can be formed of phosphat of lime only, since this is the only insoluble substance they contain.

"Fourth difference: the urines of the lion and the tiger contain but an infinitely small quantity of muriat of soda; whereas that of men generally exhibits a great deal.

"We find in these urines a great quantity of urea very much disposed to crystallization, and in general a little coloured; phosphats of soda and ammonia, sulphat of potash, a mucous matter, and a trace of iron.

"The above are the points in which the urines of the lion and royal tiger resemble that of man; but they differ, as has been shown, in a sufficient number of points to warrant us in forming a particular species. It is composed as follows:

1. Urea,
2. Animal mucus,
3. Phosphat of soda,
4. Phosphat of ammonia,
5. Muriat of ammonia,
6. A trace of phosphat of lime,
7. Sulphat of potash in a large quantity,
8. An atom of muriat of soda.

"A careful analysis several times repeated of the urine of the beaver, proved that it has a great resemblance to the urine of the common herbivorous animals.

"In fact, we there find carbonat of lime kept in solution by a superabundance of carbonic acid: benzoic and acetic acids, urea, muriat of soda, and sulphat of potash; and we meet with no uric acid in it, or phosphoric salts.

"Nevertheless it differs in so far as it contains no muriat of ammonia, and as possessing a considerable quantity of carbonat and acetat of magnesia, which is not found, at least in a great quantity, in the urine of herbivorous animals.

"I discovered the carbonat of magnesia in the following manner:

"After having concentrated by a gentle heat a certain quantity of this urine, I decanted the liquor, and washed with distilled water the vessel to the sides of which the carbonat of lime adhered. I afterwards passed sulphuric acid into it diluted with water, which produced a frothy effervescence on account of a mucous matter which carries off with it the carbonat of lime.

"Perceiving that the sulphuric acid had acquired a bitter taste from this combination, I dried and calcined the mixture, then I washed it with a little water, and I obtained by the evaporation of the latter a salt which had all the properties of sulphat of magnesia.

"Wishing to ascertain by another experiment, if there was muriat of ammonia in the urine of the beaver, as well as in that of other herbivorous animals, I put into a portion of this thickened liquor a piece of caustic potash; and as the odour of the ammonia was not perceived even with the aid of heat, I concluded that it did not contain any muriat of ammonia: but a phenomenon was exhibited which astonished me, and which excited a desire to examine the cause of it. The liquor went into a gelatinous-like mass: suspecting that this effect was produced by the precipitation of some earthy substance, I treated the whole of the thickened urine which I possessed with caustic potash; I filtered the liquor, in order to obtain the matter in question; and after having washed and calcined it, I combined it with sulphuric acid diluted with water, and obtained sulphat of magnesia mixed with a little sulphat of lime.

"Although I have announced that the urine of the beaver contains acetat of magnesia, yet I am not perfectly certain of it: in fact, it may be possible that during the evaporation, although effected with a gentle heat, a certain quantity of acetic acid may be formed, and the latter may have acted on the carbonat of magnesia left in the liquor, on account of its solubility being greater than that of the carbonat of lime.

"We generally ascertain by the colour, smell, and taste, and above all by the property which the urine of the beaver possesses of staining alumed cloths, the kind of vegetables on which the animal feeds.

"In the urine of the animal which I made the subject of my experiment, I distinguished evident marks of the colouring matter of willow bark, and its keeper confirmed the observation.

"There seem to be cases, therefore, in which certain vegetable substances may pass through the digestive organs, and the circulation, without entirely losing the properties which distinguish them in their natural state.

"I also found in the urine of the beaver a quantity of iron, which at first astonished me; but having reflected that it had been collected in a tinned iron vessel, and that it contained carbonic acid, I thought that the greater quantity of this metal proceeded from the vessel.

"The urine of the beaver is therefore composed of,

1. Urea,
2. Animal mucus,
3. Benzoat of potash,
4. Carbonat of lime and magnesia,
5. Acetat of magnesia (doubtful),
6. Sulphat of potash,
7. Muriat of potash or of soda,
8. Vegetable colouring matter,
9. Lastly, a little iron."

URINE (Retention of). A want of the ordinary secretion of urine. In retention of urine there is none secreted: in a suppression, the urine is secreted but cannot be voided.

URINE (Suppression of). See ISCHURIA.

To U'RINE. *v. n.* (*uriner*, French.) To make water.

U'RINOUS. *a.* (from *urine*.) Partaking of urine (*Arbuthnot*).

URN. *s.* (*urne*, French; *urna*, Latin.) 1. Any vessel, of which the mouth is narrower than the body (*Dryden*). 2. A water-pot (*Creech*). 3. The vessel in which the remains of burnt bodies were put (*Wilkins*).

UROGALLUS, in ornithology. See TETRAO.

URSA, in astronomy, the Bear, a name common to two constellations of the northern hemisphere, near the pole, distinguished by Major and Minor.

URSA MAJOR, or the Great Bear, one of the 48 old constellations, and perhaps more ancient than many of the others; being familiarly known and alluded to by the oldest writers, and is mentioned by Homer as observed by navigators. It is supposed that this constellation is that mentioned in the book of Job, under the name of Chesil, which our translation has rendered Orion, where it is said, "Canst thou loose the bands of Chesil (Orion)?" It is farther said that the ancients represented each of these two constellations under the form of a waggon drawn by a team of horses, and the Greeks originally called them waggons and two bears; they are to this day popularly called the wains, or waggons, and the greater of them Charles's Wain. Hence is remarked the propriety of the expression, "loose the bands," &c. the binding and loosing being terms very applicable to a harness, &c.

Perhaps the Egyptians, or whoever else were the people that invented the constellations, placed those stars, which are near the pole, in the figure of a bear, as being an animal inhabiting towards the north pole, and making neither long journeys, nor swift motions. But the Greeks, in their usual way, have adapted some of their fables to it. They say this bear was Callisto, daughter of Lycaon, king of Arcadia; that being debauched by Jupiter, he afterwards placed her in the heavens, as well as her son Arcturus.

The Greeks called this constellation Arctos and Helice, from its turning round the pole. The Latins from the name of the nymph, as variously written, Callisto, Megisto, and Flemisto, and from the Arabians, sometimes Feretrum Majus, the Great Bier. And the Ursa Minor they called Feretrum Minus, the Little Bier. The Italians have followed the same custom, and call them Cataletto. They spoke also of the Phenicians being guided by the Lesser Bear, but the Greeks by the Greater.

There are two remarkable stars in this constellation, viz. those in the middle of his body, considered as the two hindermost of the wain, and called the pointers, because they always point nearly in a direction towards the north pole star, and so are useful in finding that star.

The stars in Ursa Major are, according to Ptolomy's catalogue, 35; in Tycho's 56; in Hevelius's 73; but in the Britannic catalogue 87.

URSA MINOR, the Little Bear, called also Arctos Minor, Phœnice, and Cynosura, one of the 48 old constellations, and near the north pole, the large star in the tip of its tail being very near to it, and thence called the pole-star.

The Phenicians guided their navigations by this constellation, for which reason it was called Phenice, or the Phenician constellation.

It was also called Cynosura by the Greeks, because, according to some, that was one of the dogs of the huntress Calllisto, or the Great Bear; but according to others Cynosura was one of the Idæan nymphs that nursed the infant Jupiter; and some say that Calisto was another of them, and that, for their care, they were taken up together to the skies.

Ptolomy places in this constellation 8 stars, Tycho 7, Hevelius 12, and Flamsteed 24.

URSINA RADIX. The root of the plant called bold-money. See MEUM ATHAMANTICUM.

URSUS. Bear. Badger. Racoon, &c. In zoology, a genus of the class mammalia, order feræ. Fore-teeth, upper six, hollowed within, alternate; lower six, lateral two longer, lobed; secondary at the base interior; tusks solitary; grinders from five to six, the first approaching the tusks; tongue smooth; eyes with a nectitant membrane; snout prominent; penis with a curved bone.

These have five toes on each foot, all contiguous; sole of the foot long, resting on the heel: they climb; and some use the fore-feet like hands. Ten species, as follow.

1. U. arctos. Black bear. Five varieties.
α. Quite black, and smaller than the rest.
β. Brown, or ferruginous.
γ. Black, mixed with white hairs.
δ. Variegated.
ε. White.

This species has a long head, small eyes, and short ears, rounded at the top; limbs strong, thick, and clumsy; feet large; tail very short; its body covered with very long shaggy hair. The largest bears of this species are the rusty brown, β; the smallest, the deep black, α. Those on the confines of Russia black, mixed with white hairs, γ, are called by the Germans silver bears. It is Tartary that yields the pure white, ε, but these are very rare.

They inhabit the northern parts of Europe, Asia, and Arabia, the Alps of Switzerland and Dauphiné; Japan and Ceylon, North America and Peru. Thus they appear to be confined to no one climate; but to bear with almost any, except the burning sands of Africa.

The brown bears are sometimes carnivorous, and will destroy cattle, and eat carrion; but their general food is roots, fruits, and vegetables: they will rob the fields of peas; and when they are ripe, pluck up great quantities of them, beat out the pulse, and carry away the straw. Some of them feed also on insects and honey. The carnivorous kinds inflate the carcases of their prey, and bury what is left. They wash their feet and lick their paws when in the den: gravid a hundred and twelve days, and bring forth one: they become torpid from the middle of November till the frost breaks; walk slowly, unless irritated, and then very quickly; fight with the fore-feet, standing erect upon the hind; never attack man unless provoked; before battle always make the young get into trees: descend trees tail foremost, of which they are careful; are not lousy; fly at music; stand easily on the hind-feet; swim; the nectitant membrane renders the aspect horrid. The thumb is narrower than the other toes; teats four; head less than that of the lion, brain larger; the tendons are made use of as thread by the Laplanders. The flesh is eatable; the gall very bitter, and used in epilepsies; the fat employed to make hair grow.

2. U. Americanus. American bear. Black; throat and cheeks rusty-brown. The black bears of America are much smaller in size than the preceding: the nose is long, pointed, and of a yellowish brown colour; hair on the body and limbs blacker, more smooth and glossy than that of the European kind.

The same variety is also found in Kamschatka: they are very cowardly, and will not attack mankind unless provoked, or in defence of their young. Those of Kamschatka will bite the natives when they find them asleep, but will not devour them. In both countries they confine themselves entirely to vegetables, and are remarkably fond of maize and potatoes: they reject all animal food but fish, even when pressed by hunger.

The females, after conception, retire into the most secret places; lest, when they bring forth, the males should devour the young. So impenetrable is their retreat during pregnancy, that out of five hundred, killed in one winter in two counties of Virginia, only two females were found, and those not pregnant.

Winter is their breeding season: they bring two, rarely three, young at a time: the cubs are deformed, but not a shapeless mass, to be licked into shape, as the ancients pretended. The cubs, even of the brown bear, are of a jetty blackness, and often have round their necks a circle of white. The flesh of a bear in autumn, when they are most excessively fat, by feeding on acorns and other mast, is delicate food, and that of the cubs still finer; but the paws of the old bears are reckoned the most delicate morsel: their fat is very white and sweet.

In the latter end of autumn, after they have fattened themselves to the greatest degree, they withdraw to their dens, where they continue for a great number of days in total inactivity and abstinence from food; having no other nourishment than what they get by sucking their feet, where the fat lodges in great abundance. In Lapland, they pass the long night in dens lined warmly with a vast bed of moss, in which they roll themselves, secure from the cold of that severe season. Their retreats are either in clefts of rocks; in the deepest recesses of the thickest woods; or in the hollows of ancient trees, which they ascend and descend with surprising agility. As they lay in no winter provisions, they are in a certain space of time forced from their retreats by the urgent calls of hunger, and come out extremely lean. Multitudes of them are killed annually in America for the sake of their flesh or skins; which last make a considerable article of commerce.

There are no bears in Britain or in France, except, perhaps, a few in the most unfrequented mountains of the latter. They are solitary animals; but the young follow their mother so long as they need her assistance: they are said to live twenty or twenty-five years: the male and female live not together, but have each a separate place of retreat: their amazing fatness makes them light for swimming; and accordingly they traverse with ease rivers and lakes. Upon their sides and thighs their fat is sometimes ten inches thick. The soles of their feet appear to be composed of small glands: when wounded, there issues out a white milky juice: it is this perhaps that they suck from their paws.

Buffon mentions two domestic bears, that in 1772 were at Berne, and had been brought from

Savoy thirty years before that period. These began to generate at the age of five: after which period the female was in season every year in the month of June, and brought forth in January; she produced the first time one cub only, and afterwards sometimes one, sometimes two; but never more than three: she was exceeding fond of them: their eyes were shut during four weeks. At first they did not exceed eight inches in length: at the end of three months they measured only fifteen.

After the death of the male, which happened in consequence of a fall from a high tree, the female appeared to be much afflicted; and refused every kind of nourishment for several days: but unless these animals be brought up together from their earliest youth, they cannot endure one another; and after being accustomed to this kind of society, the survivor will not admit another mate. They are said to have weak eyes, but acute senses of hearing, touching, and smelling. When the bear is hunted, and finds himself overpowered, he leans his back against a rock or a tree, collects turf and stones, which he throws at his enemies; and it is generally in this situation that he receives the finishing blow.

3. U. maritimus. White or Polar bear. White; tail short; head and neck lengthened; end of the nose black; teeth very large; hair long, soft, and white, tinged in some parts with yellow; limbs of great size and strength. This species grows to a vast bulk: the skins of some are thirteen feet long. They are confined to the coldest part of the globe, and have been found as far as navigators have penetrated northward, above the parallel of eighty degrees. The frigid climates alone seem adapted to their nature; even the north of Norway, and the country of Mesen, in the north of Russia, are destitute of them; they are found chiefly on the shores of Hudson's bay, Greenland, and Spitzbergen: they are also met with in great abundance in Nova Zembla, and from the river Oby along the coast of Siberia to the mouths of the Jenesei and Lena; but never seen far inland, unless they lose their way in mists. None are found in Kamschatka or its islands.

They have been found as far south as Newfoundland; but they are not natives of that country, being only brought there accidentally on islands of ice that float along the northern seas, from the polar regions southward.

During summer, the white bear is either resident on some island of ice, or passes from one to another. They swim admirably, and can continue that exercise six or seven leagues; they dive with great agility. They bring two young at a time; and so strong is the affection between the parents and the offspring, that they die rather than desert one another. Their winter retreats are under the snow, in which they form deep dens, supported by frozen pillars of the same, or else under some great eminence, beneath the fixed ice of the frozen ocean.

They feed on fishes, seals, and the carcasses of whales, and on human bodies, which they will greedily disinter: they seem to be very fond of human blood; and are so fearless as to attack companies of armed men, and even to board small vessels. When on land, they live on birds and their eggs. Allured by the scent of the seals flesh, they often break into the houses of the Greenlanders. Their greatest enemy of the brute creation is the morse, with which they have terrible conflicts, but are generally worsted; the vast teeth of the former giving it a decided superiority.

Their flesh is white, and said to taste like mutton; but their liver is very unwholesome: their fat is melted for train oil.

One of this species was brought over to England a few years ago, and exhibited in many places. It was very furious; almost always in motion; roared loud; and seemed very uneasy, except when cooled, by having pail-fulls of water poured upon it.

Land bears, sometimes spotted with white, at other times wholly white, are sometimes seen in the parts of Russia bordering on Siberia, in a wandering state, and are supposed to have strayed out of the lofty snowy mountains which divide the two countries. They are said to dread the whale, who scents and pursues them, from a natural antipathy; because they eat her young.

4. U. luscus. Wolverene, or wolverene bear. Tail long; body rusty-brown; snout blackish; forehead and sides yellowish-brown. This species of the bear has a black, sharp-pointed visage, and short, round ears, almost hid in the hair. The hair on its head, back, and belly, is reddish, tipt with black; so that, at first sight, those parts appear quite black: its sides are of a yellowish brown. This colour passes, in form of a band, quite over the hind part of the back above the tail: it has a white spot on its throat, and on its breast another white mark, in form of a crescent; its legs are very thick and short, of a deep black: it has five toes on each foot; but they are not deeply divided. Like the brown and the black bear, it rests on its foot as far as the first joint of the leg, and walks with its back greatly arched: claws strong and sharp, white at their ends; tail clothed with long coarse hairs; those at the base reddish, at the end black. Some of the hairs are six inches long. The length of the animal itself is about twenty-eight inches: the trunk of the tail measures seven inches, and the hair six more. Its whole body is covered with very long and thick hair, which varies in colour according to the season. It inhabits Hudson's Bay and Canada, as far as the straits of Michilimackinac.

It is a voracious animal, but slow of foot; it is consequently obliged to take its prey by surprise. In America it is called the beaver eater; for it watches those animals as they come out of their houses, and sometimes also breaks into their habitations and devours them. Fastens also on deer as they pass by. Head like a glutton's; general size that of the wolf.

In a wild state it is extremely fierce, and is a terror to both the wolf and the bear. They will not prey on it when they find it dead, perhaps on account of its being so very fetid, since it smells like a pole-cat. It makes a strong resistance when attacked. If it can lay hold on it, it will tear the stock from a gun, and pull the traps it is caught in to pieces. It burrows, and has its den under ground.

5. U. gulo. Glutton. Tail the colour of the body, tawny-brown; middle of the back black; head round, a thick blunt nose, and short ears, rounded except at the tip: limbs large, and back straight, marked along its whole length with a tawny line: tail short, and very full of hair; hair in all other parts finely damasked, or watered like a silk, and very glossy; but it sometimes varies to a brown colour. One brought from Siberia, and kept alive at Dresden, measured forty-four inches, and nineteen in height.

It inhabits the northern parts of Europe, Asia, and America. Those of Kamschatka differ and vary to white and yellowish. The natives prefer the skins of these to such as are black: they say the heavenly beings wear no other garments. The women wear the paws of the white sort in their hair, and esteem the skin of one the most valuable present their husbands or lovers can make them.

These animals derive their name from their voracious appetite. The one already mentioned as being kept at Dresden, would eat thirteen pounds of flesh in a day, and not be satisfied; but the report of their filling themselves so full as to be obliged to go between two trees, in order to force out a part of the food, seems to be fabulous. The hunters of the isatis or Arctic fox, on the banks of the frozen sea, complain much of their depredations on these animals when caught in a trap or snare; they devour the prey, but are too cunning to be ensnared themselves.

Like the lynx and Canadian carcajou, or wolverene, the glutton lurks on the boughs of trees, and falls on any animal that passes beneath, fastening on it, and destroying it. Its favourite game is deer, and about the Lena, horses. It may be tamed. When attacked by dogs, discharges, like the weasel, an insupportable fetor.

It differs from the bear in its lean habit, and by not being torpid during the winter; and also by its living entirely on animal food: it is, moreover, more bold, voracious, and cunning. From its voracity, it has been called the vulture of quadrupeds.

The Russians name it rosomak; the Kamschatkans, timmi, and the Koratski, haeppi. An animal called by the Greenlanders amanki, and thought by some to be the same as the glutton, Mr. Pennant thinks to be a fabulous creature, as Greenland is destitute of wood.

6. U. lotor. Racoon. Tail annulate; a black, transverse stripe by the eyes. This species of the bear, of the size and figure of a small badger, is said to partake of the qualities of the fox, the dog, and the monkey. He has a sharp-pointed black nose; the upper jaw longer than the under; ears short and rounded; eyes surrounded with two broad patches of black; a dusky line down his forehead to his nose; the rest of his face, cheeks, and chin, white. The upper part of his body is covered with hair, ash-coloured at the root, whitish in the middle, and tipt with black; tail as long as his body, very bushy, and annulated with black; fore legs much shorter than the hind; has five toes on each foot, armed with strong sharp claws; the toes black, and quite divided: he sometimes varies in colour. Mr. Pennant mentions his having seen one of a cream-colour.

He inhabits the warm and temperate parts of America; is found also in the mountains of Jamaica, and in the islands about the mouth of the gulf of California: he can support excessive cold: is easily tamed, very good natured and sportive, familiar and caressing, but as mischievous as a monkey, and implacable in his resentment: he is almost always in motion, very inquisitive, examining every thing with his paws, which he uses as hands: he rests upon the first joint of his hind legs, and sits erect to eat: he softens, or rather dilutes, every kind of dry food that is given him, when confined: he is extremely fond of sweet things, and of strong liquors, and will get excessively drunk: he delights in hunting spiders, grasshoppers, snails, and worms: retires to a distance to obey the calls of nature: has all the cunning of the fox, and is very destructive to poultry, but will eat all sorts of fruits, green corn, &c.; yet he prefers fishes, shell-fishes, and eggs, to almost every thing. At low water, he feeds much on oysters: though he is very dexterous at opening them himself, to save himself the trouble, he will watch their opening, and snatch out the fish with his paw.

He climbs trees very nimbly: ascends by leaps, and rather gambols than walks: his movements, though oblique, are quick and light: his fur is esteemed next to that of the beaver for making hats.

A letter from M. Blanquart to M. Buffon gives us an amusing delineation of the manners of this animal.

"My racoon, before he came into my possession, had always been chained. In this state of captivity, he was very gentle, but had little inclination to caress. The people of the house were all equally kind to him, but he received them differently; for what pleased him in one, he revolted against in another; and in this his conduct was invariable.

"His chain sometimes gave way, and liberty rendered him insolent. He took possession of an apartment, and would allow none to enter it: it was with some difficulty that he could be again reconciled to bondage. Since he has been under my management, I have frequently given him his liberty. Without losing sight of him, I have allowed him to walk about with his chain; and each time his gratitude has been expressed by a thousand caressing gambols: but this is by no means the case when he makes his escape himself: he then roams about, sometimes for three or four days together, upon the roofs of the neighbouring houses, descends during the night-time into the court-yards, enters the hen-houses, strangles all the poultry, and eats their heads. His chain does not render him more humane, but only more circumspect. He then employs every artifice to make the fowls grow familiar with him; he permits them to partake of his victuals; and it is only after having inspired them with the highest notions of security, that he seizes one and tears it to pieces. Some young cats have met with the same fate.

"This racoon is not very grateful for the caresses he receives, but is extremely sensible of bad treatment. A servant one day gave him several lashes with a whip; and he has endeavoured ever since in vain to accomplish a reconciliation. Neither eggs nor fishes, of which the animal is very fond, can appease his resentment. At the approach of the servant, he flies into a rage, his eyes kindle, he springs at him, utters dolorous cries, and rejects every thing that is presented to him, till the object of his resentment disappears.

"If any person strike him, or if he be attacked by an animal that he thinks stronger than himself, he makes no resistance, but, like the hedge-hog, conceals his head and feet, by rolling up his body in the form of a ball; no complaint escapes him; and in this position he calmly submits to be killed.

"He abhors children; their crying irritates him; and he makes every effort to spring upon them. He is equally irritated by the shrill bark of young dogs. He sleeps from twelve o'clock at night till twelve at noon; washes his food and carries it to his mouth with his fore-paws: brings from two to three young."

7. U. meles. Badger. Body above cinereous, beneath black: a longitudinal black stripe including the eyes and ears; tail the colour of the body.

Two other varieties: the one white above, yellowish-white beneath; the other white, with reddish-yellow and brown spots.

This species has small eyes, short rounded ears, and a short thick neck: his nose and chin, the lower side of his cheeks, and the middle of his forehead, are white: the hair on his body is long and coarse: its bottom of a yellowish white; middle black; and ash-coloured at the ends: his throat, breast, and belly, are black: his tail is covered with long hair, of the same colour with that of the body: legs are very short and thick: the claws on his fore feet very long: a fetid white matter exsudes from the orifice beneath his tail. He is an animal of a very clumsy make, commonly two feet six inches in length: his tail measures six inches: he weighs from fifteen to thirty-four pounds. Mr. Pennant met with a male of the weight last mentioned in the year 1779; but such are very rare.

The badger inhabits most parts of Europe, as far north as Norway and Russia, and the Step or desert beyond Orenburgh in the Russian Asiatic dominions; in Great Tartary, and in Siberia about the river Tom, and even about the Lena; but there are none to the north. It inhabits China also, and is often found in the butchers shops in Pekin, the Chinese being fond of this genus for the table. It is a scarce animal in most countries: a diffident and solitary creature: it seldom appears in the day, when it confines itself much to its hole, and is indolent and sleepy, generally very fat. It feeds by night, and eats roots, fruits, grass, insects, and frogs, but is not carnivorous, according to Mr. Pennant, while Buffon asserts that it prefers flesh to every thing else. It runs very slowly; when overtaken, comes to bay, and defends itself vigorously: its bite is hard and dangerous. It is hunted during the night for the skin, which serves for pistol furniture, and its hair for making brushes to soften the shades in painting. Its flesh makes good bacon. The division of this species into two, the swine and the dog badger, Mr. Pennant thinks unnecessary, as he asserts there is only one. It burrows under ground, and makes several apartments, but forms only one entrance from the surface.

Buffon says, the badger retires to the most secret places, to the inmost recesses of the forest, and there digs a subterranean habitation: he seems to fly society, and even the light, and spends three-fourths of life in his dark abode, from which he never departs but in quest of subsistence. As his body is long, his legs short, his claws, especially those of the fore-feet, very long and strong, he digs and penetrates the earth with greater facility than any other animal: he makes his hole winding and oblique. The fox, who cannot dig with equal dexterity, avails himself of the operations of the badger. Being unable to make him quit his habitation by force, the fox practises every art to render him uneasy. He stands centinel at the entrance of the hole, and even defiles it with his ordure. He afterwards take possession, enlarges, and fits it up for his own accommodation: the badger, though obliged to change his habitation, leaves not his country; he goes to a small distance only, where he digs a fresh hole. When buried within his retreat, he is soon however overtaken by the dogs: though they seldom accomplish their purpose without assistance. The hair of the badger is very thick, and his legs, jaws, teeth, and claws, exceedingly strong. These natural weapons he uses with courage and dexterity. He lies on his back, and resists all the efforts of the dogs, and wounds them in the most dangerous manner. He is besides tenacious of life, fights long, makes a brave defence, and persists to the last extremity.

The young ones are easily tamed: they play with the dogs, and follow the person who feeds them: but when taken old, they continue always savage. They are neither mischievous nor ravenous, like the wolf and the fox. They often remain in their holes three or four days together, especially during snow: keep their habitations extremely clean, and never defile them with excrement, having a distinct repository without. The male is seldom found with the female. When about to bring forth, she cuts down herbage, bundles it up, and trails it with her feet to the bottom of her hole, where she makes a commodious bed for herself and her young ones. She brings forth in summer; and the litter consists of three or four.

It is probable that the badger was quite unknown to the Greeks, as it is not mentioned by Aristotle in his Natural History; nor is there any name for it in the Greek language. In Latin it has two names, meles and taxus; and in French it has two also, blaireau and taisson. The circumstance of a double name has led many to believe that there are two distinct species of the badger in Europe; but both Pennant and Buffon assert the contrary. The author last mentioned observes, this species of quadruped, an original native of the temperate climates of Europe, has never spread beyond Spain, France, Italy, Germany, Britain, Poland, and Sweden; and it is every where very scarce. It does not approach to any other species: its characters are deeply marked, and very singular. The alternate belts upon his head are peculiar: his body is nearly white above, and almost black below, which is contrary to all other wild animals, whose bellies are always of a lighter colour than their back.

8. U. Labradorius. Tail hairy at the tip, brown-yellow; throat, breast, and belly, white; fore-feet four-toed. This in Pennsylvania is called the ground hog. It has a white line from the tip of the nose passing between his ears to the beginning of his back, bounded on each side with black, as far as the hind part of the head; then by a white one, and immediately between that and the ears there is another of long black hair. His back is coloured like that of the common badger; thighs dusky; tail dirty yellow tipped with white; the end dusky.

9. U. Indicus. Indian badger. Head small, nose pointed, and only a small prominent rim round an oval orifice for ears; colour of the nose and face, a little beyond the eyes, black; crown, upper part of the neck and back, white, inclining to grey; legs, thighs, breast, belly, and sides, and the upper part of the tail, black: five toes on each foot; the inner ones small: claws very long and straight: length about two feet; of the tail about four inches: hair short and smooth. It derives its name from the country it inhabits: is very lively, playful, and good natured: sleeps rolled up, with its head between its hind legs. One in possession of Mr. John Hunter refused all commerce with an English badger that was turned in to it, and lived some time in the same place. It was wont to climb very readily over a division in its cage, and slept very little during the day-time.

10. U. tetradactylus. Land bear. Feet four-toed; body yellowish-white; eyes small; legs short; claws white, sharp; tail long. Less than

the badger; almost destitute of hair; impatient of cold; burrows in the ground.

URTICA. Nettle. In botany, a genus of the class monœcia, order tetrandria. Male: calyx four-leaved; corolless; rudiment of the germ cup-shaped. Fem.: calyx two-leaved; corolless; seed one, superior, polished. Fifty-nine species, scattered over the globe; three common to our own wastes.

Of this tribe about half have their leaves opposite, and about half their leaves alternate. The three following are cultivated.

1. U. cannabina. Hemp-leaved nettle. With perennial root; flowers axillary, in long cylindrical aments. A native of Siberia.

2. U. Canadensis. Canada nettle. Root perennial; flowers in axillary branching aments. A native of Canada.

3. U. nivea. Chinese or white-leaved nettle. Perennial, the stalks rising three or four feet high: the leaves deep-green above, very white below; flowers axillary, in loose aments. A native of the East Indies. They may be increased by parting or slipping the roots in the autumn.

We must not omit to notice,

4. U. dioica. Common nettle. The leaves are hearted; racemes much branched, in pairs, mostly diœcious. The aculei or stings have a small bladder at their base full of a burning corrosive liquor: when touched these are well known to create a violent itching pain, though the sting does not appear to be tubular, or perforated at the top, nor any visible liquor to be introduced into the puncture; there can be no doubt however that some portion of the liquor does enter, since the dried stings produce no pain.

5. U. urens. Smaller stinging nettle. Leaves roundish, deeply serrate, opposite. In this species the aculei are tapering, and finely pointed, and loaded, like the last, with a poison-bag at their bottom: when pressed upon they readily perforate the skin, and a portion of the caustic juice in the bag is forced up through the hollow but pointed tube into the wound. This also is found on our commons.

6. U. pilulifera. Roman nettle. Leaves ovate, serrate; female flowers in heads. Pungent; but less so than the preceding. The seeds of this were formerly given against diseases of the chest, but is now deservedly forgotten. To raise an irritation in paralytic limbs the fresh plant may be employed, as producing a more permanent sting than the common nettle.

The common nettle, though generally despised as a noxious weed, has been long used for medical, culinary, and economical purposes. The young shoots in the spring possess diuretic and antiscorbutic properties, and are with these intentions boiled and eaten instead of cabbage greens.

The stalks are so like hemp in quality, that in some parts of Europe, and especially in Siberia, they have been manufactured into cloth and paper. See Nettle.

URTICARIA. (from *urtica*, a nettle.) Febris urticata. Uredo. Purpura urticata. Scarlatina urticata. The nettle rash. A species of exanthematous fever, known by pyrexia and an eruption on the skin like that produced by the sting of the nettle. The little elevations, called the nettle rash, often appear instantaneously, especially if the skin be rubbed or scratched, and seldom stay many hours in the same place, and sometimes not many minutes. No part of the body is exempt from them; and where many of them rise together, and continue an hour or two, the parts are often considerably swelled, which particularly happens in the arms, face, and hands. These eruptions will continue to infest the skin, sometimes in one place and sometimes in another, for one or two hours together, two or three times a day, or perhaps for the greatest part of twenty-four hours. In some constitutions they last only a few days, in others many months.

US. The oblique case of *we*.

U'SAGE. *s.* (*usage*, French.) 1. Treatment (*Dryden*). 2. Custom; practice long continued (*Hooker*). 3. Manners; behaviour: obsolete (*Spenser*).

U'SAGER. *s.* (*usager*, French.) One who has the use of any thing in trust for another.

USANCE, in commerce, is a determinate time fixed for the payment of bills of exchange, reckoned either from the day of the bills being accepted, or from the day of their date; and thus called because regulated by the usage and custom of the places whereon they are drawn. See Exchange.

USBEC TARTARY, a vast country of Western Tartary, bounded on the N. by the country of the Kalmucs and Turkestan, E. by Tibet, S. by Hindustan and Persia, and W. by the Caspian sea. These Tartars are divided into several tribes, governed by their respective khans, or princes. When under one sovereign, they were the most powerful of all the Tartarian nations. The principal khans pride themselves in being descended from Tamerlane, whose birthplace was the ancient city of Samarcand, the present capital of the country. The Usbecs, in their persons, are said to have better complexions and more engaging features than the Kalmucs. Their religion is Mahometanism; and they differ, in general, very little from the people of the northern provinces of Hindustan.

USE. *s.* (*usus*, Latin.) 1. The act of employing any thing to any purpose (*Locke*). 2. Qualities that make a thing proper for any purpose (*Temple*). 3. Need of; occasion on which a thing can be employed (*A. Philips*). 4. Advantage received; power of receiving advantage (*Dryden*). 5. Convenience; help; usefulness (*Locke*). 6. Usage; customary act (*Locke*). 7. Practice; habit (*Waller*). 8. Custom; common occurrence (*Shakspeare*). 9. Interest; money paid for the use of money.

To Use. *v. a.* (*user*, French; *usus*, Latin.) 1. To employ to any purpose (1 *Chronicles*). 2. To accustom; to habituate (*Roscommon*). 3. To treat (*Knolles. Addison*). 4. To practise (1 *Peter*). 5. To behave: out of use (*Shakspeare*).

To Use. *v. n.* 1. To be accustomed; to practise accustomarily (*Spenser*). 2. To be customarily in any manner; to be wont (*Bacon*). 3. To frequent; to inhabit: obsolete (*May*).

Use, is a trust and confidence reposed in another who is tenant of the land, that he shall dispose of the land according to the intention of cestuy que use, or him to whose use it was granted, and suffer him to take the profits. 2. Black. 328.

By stat. 27 H. VIII. c. 10, commonly called the statute of uses, or the statute for transferring uses into possession, the cestuy que use is considered as the real owner of the estate; whereby it is enacted that, when any person is seized of lands to the use of another, the person intitled to the use in fee simple, fee-tail, for life or years, or otherwise, shall stand and be seized or possessed of the land, in the like estate, as he has of the use, trust, or confidence; and thereby the act makes cestuy que use complete owner both at law and in equity. 2 Black. 302.

Uses (Superstitious). See Mortmain.

Uses and customs of the sea, are certain maxims or rules which form the basis of the maritime jurisprudence, by which the policy of navigation, and the commerce of the sea, are regulated.

These uses and customs consist of three kinds of regulations: the first called the laws or judgments of Oleron; the second, regulations made by the merchants of Wisbuy, a city in the island of Gothland, in the Baltic, anciently much famed for commerce; and the third, a set of regulations made at Lubec, by the deputies of the Hanse towns.

USEDOM, an island of Hither Pomerania, in the Baltic sea, between the mouths of the Peene and Swin, with two forts named after these two rivers. It has a town of the same name, on the S.W. coast, 40 miles N.W. of Stettin. Lon. 14. 2 E. Lat. 53. 58 N.

U'SEFUL. *a.* (*use* and *full.*) Convenient; profitable to any end; conducive or helpful to any purpose (*Swift*).

U'SEFULLY. *ad.* In such a manner as to help forward some end (*Bentley*).

U'SEFULNESS. *s.* Conduciveness or helpfulness to some end (*Addison*).

U'SELESS. *a.* (from *use.*) Answering no purpose; having no end (*Boyle*).

U'SELESSLY. *ad.* Without the quality of answering any purpose (*Locke*).

U'SELESSNESS. *s.* (from *useless.*) Unfitness to any end (*L'Estrange*).

U'SER. *s.* (from *use.*) One who uses (*Wotton*).

USHANT, an island of France, on the coast of the department of Finisterre, opposite Conquet. It is eight miles in circumference, and contains several hamlets and a castle. Lon. 5. 5 W. Lat. 48. 28 N.

U'SHER. *s.* (*huisser*, French.) 1. One whose business it is to introduce strangers, or walk before a person of high rank (*Shaksp.*) 2. An under-teacher; one who introduces young scholars to high learning (*Dryden*).

To U'sher. *v. a.* (from the noun.) To introduce as a forerunner or harbinger; to forerun (*Milton. Pope*).

Usher (James), archbishop of Armagh, in Ireland, was born at Dublin, in 1580. He was admitted into the college of Dublin, in 1593. The study of history was one of his earliest pursuits, and before he was sixteen, he had made such a proficiency in chronology, that he had formed in Latin an exact chronicle of the Bible, up to the book of Kings, differing but little from the learned work he afterwards published under the title of Annals. In 1600 he took his degree of M. A. and in 1601, though under canonical age, he was, on account of his great learning, ordained both deacon and priest; and was soon after appointed to preach before the court. In 1607 he was made chancellor of St. Patrick's, Dublin. He was also chosen in the same year divinity professor in the university there. In 1612 he took his doctor of divinity's degree; and the next year published his work De Ecclesiarum Christianarum Successione & Statu; which was presented by archbishop Abbot to king James, by whom it was favourably received; and his subsequent conduct in Ireland recommending him to that monarch, he was in 1620 promoted to the see of Meath, and in 1626 to the archbishopric of Armagh. In the great rebellion he retired to England, where he received the bishopric of Carlisle from Charles I. but never obtained any advantage from it. He died in 1655, and was magnificently buried by Cromwell, who, however, left the archbishop's executors to pay the expences. He published, 1. Britannicarum Ecclesiarum Antiquitates. 2. Polycarpi et Ignatii Epistolæ, Græce Latine, &c. 3. Annals of the Old and New Testament, in Latin. 4. De Græce Septuaginta interpretum Versione Syntagma; and many other books which are esteemed. A considerable number of his works still remain in manuscript.

Usher, an officer, or servant, who has the care and direction of the door of a court, hall, chamber, or the like.

In the king's household there are two gentlemen ushers of the privy-chamber appointed to attend the door, and give entrance to persons that have admittance thither; four gentlemen-ushers, waiters; and eight gentlemen-ushers, quarter-waiters in ordinary.

Usher also signifies an officer of the court of exchequer, of which there are four, who attend the barons and chief officers of that court at Westminster, as also juries, sheriffs, &c. at the pleasure of the court. There is also an usher of the court of chancery.

Usher of the black rod, the eldest of the gentlemen-ushers daily waiters at court, whose duty is to bear the rod before the king at the feast of St. George, and other solemnities: he has also the keeping of the chapter-house door, when a chapter of the order of the garter is sitting, and in time of parliament attends the house of peers, and takes delinquents into custody. He wears a gold badge, embellished with the ensigns of the order of the garter.

USK, a river which rises in Wales, on the W. side of Brecknockshire, flows by Brecknock, and entering Monmouthshire, passes by Abergavenny, Usk, Caerleon, and Newport, into the Bristol channel.

USK, a town in Monmouthshire, with a market on Monday, and a manufacture of japanned ware. Here are the ruins of a castle and priory; part of the latter is converted into a farm-house, and its church is now the parish-church. It is seated on the river Usk, 12 miles S.W. of Monmouth, and 142 W. by N. of London.

USNEA. Muscus cranii humani. This moss, lichen saxatilis of Linnéus, when growing on the human skull, was formerly in high estimation, but now deservedly forgotten.

USQUEBAUGH, a strong compound liquor, chiefly taken by way of dram.

There are several different methods of making this liquor; but the following is esteemed one of the best: to two gallons of brandy, or other spirit, put a pound of Spanish liquorice, half a pound of raisins of the sun, four ounces of currants, and three of sliced dates; the tops of balm, mint, savoury, thyme, and the tops of the flowers of rosemary, of each two ounces; cinnamon and mace, well bruised, nutmegs, aniseeds, and coriander-seeds, bruised likewise, of each four ounces; citron, or lemon and orange peel, scraped, of each an ounce: let all these infuse forty-eight hours in a warm place, often shaking them together: then let them stand in a cool place for a week: after which the clear liquor is to be decanted off, and to it are to be put an equal quantity of neat white Port, and a gallon of Canary; after which it is to be sweetened with a sufficient quantity of double-refined sugar.

USTERIA, in botany, a genus of the class monandria, order monogynia. Calyx four-toothed; one of the divisions much larger than any of the rest; corol funnel-form, four-toothed; capsule one-celled, two-seeded; seed arillate. One species only, a shrub of Guinea, with opposite branches, and panicled terminal flowers.

USTICA, a small island in the Mediterranean, 25 miles N. of the coast of Sicily. It was for centuries uninhabited, except by wild goats, till in the year 1765 a citadel was built and a colony settled. The island is without springs, and only supplied with fresh water by rain kept in cisterns. Lon. 13. 26 E. Lat. 38. 42 N.

USTILAGO, a name among many botanical writers for the parasytic plant called smut, or black-mildew. See the articles MUCOR and UREDO; as also HUSBANDRY.

USTIUG, a town of Russia, in the government of Vologda, capital of a large province of its name, and an archbishop's see. Great quantities of grain are sent hence to different parts. It is seated on the Dwina, at the influx of the Sukhona, 464 miles N.E. of Moscow. Lon. 16. 30 E. Lat. 61. 15 N.

U'STION. *s.* (*ustion*, Fr. *ustus*, Latin.) The act of burning; the state of being burned.

USTO'RIOUS. *a.* (*ustum*, Latin.) Having the quality of burning (*Watts*).

U'SUAL. *a.* (*usuel*, French.) Common; frequent; customary (*Hooker*).

U'SUALLY. *ad.* Commonly; frequently; customarily (*Swift*).

U'SUALNESS. *s.* (from *usual.*) Commonness; frequency.

USUCA'PTION. *s.* (*usus* and *capio*, Lat.) In the civil law, the acquisition of the property of a thing by possession thereof for a certain term of years.

USUFRU'CT. *s.* (*usufruit*, French.) The temporary use; enjoyment of the profits, without power to alienate (*Ayliffe*).

USUFRU'CTUARY. *s.* (*usufructuarius*, Latin.) One that has the use and temporary profit, not the property of a thing (*Ayliffe*).

To U'SURE. *v. n.* (*usura*, Latin.) To practise usury; to take interest for money (*Shakspeare*).

U'SURER. *s.* (*usurier*, French.) One who puts money out at interest. Commonly used for one that takes exorbitant interest (*Shakspeare*).

USU'RIOUS. *a.* (*usuaire*, Fr.) Given to the practise of usury; exorbitantly greedy of profit (*Donne*).

To USU'RP. *v. a.* (*usurpo*, Latin.) To possess by force or intrusion; to seize or possess without right (*Ben Jonson*).

USURPA'TION. *s.* (from *usurp.*) Forcible, unjust, illegal seizure or possession (*Dryden*).

USU'RPER. *s.* (from *usurp.*) One who seizes or possesses that to which he has no right (*Spenser*).

USU'RPINGLY. *ad.* (from *usurp.*) Without just claim (*Shakspeare*).

USURY, in a strict sense, is a contract upon the loan of money, to give the lender a certain profit for the use of it, upon all events; whether the borrower made any advantage of it, or the lender suffered any prejudice for want of it, or whether it shall be repaid on the appointed time or not; and in a large sense, it seems, that all undue advantages, taken by a lender against a borrower, came under the notion of uſury. Haw. 245.

The statute 12 Anne, c. 16, enacts, that no person, upon any contract which shall be made, shall take for loan of any money, wares, &c. above the value of 5*l.* for the forbearance of 100*l.* for a year; and all bonds and assurances for the payment of any money to be lent upon usury, whereupon or whereby there shall be reserved or taken above five pounds in the hundred, shall be void; and every person who shall receive, by means of any corrupt bargain, loan, exchange, shift, or interest, of any wares or other things, or by any deceitful way, for forbearing or giving day of payment for one year, for their money or other things, above

5*l.* for 100*l.* for a year, &c. shall forfeit treble the value of the moneys or other things lent.

But if a contract, which carries interest, is made in a foreign country, our courts will direct the payment of interest according to the law of that country in which the contract was made. Thus Irish, American, Turkish, and Indian interest, have been allowed in our courts, to the amount each of 12*l.* per cent. For the moderation or exorbitance of interest depends upon local circumstances; and the refusal to enforce such contracts would put a stop to all foreign trade. 2 Black. 463.

In an action brought for usury, the statute made against it must be pleaded; and in pleading an usurious contract as a bar to an action, the whole matter is to be set forth specially, because it lies within the party's own privity; yet on an information on the statute for making such contract, it is sufficient to mention the corrupt bargain generally, because matters of this kind are supposed to be privily transacted; and such information may be brought by a stranger. 1 Hawk. P. C. 248. Likewise upon an information on the statute against usury, he that borrows the money may be a witness, after he has paid the same.

U'TENSIL. *s.* (*utensile,* low Latin.) An instrument for any use, such as the vessels of the kitchen, or tools of a trade (*South*).

U'TERINE. *a.* (*uterinus,* Lat.) Belonging to the womb (*Ray*).

UTERINE FURY. See NYMPHOMANIA.

UTERUS. (*υστερα.*) Matrix. The womb. A spongy receptacle resembling a compressed pear, situated in the cavity of the pelvis, above the vagina, and between the urinary bladder and rectum.

The form of the uterus resembles that of an oblong pear flattened, with the depressed sides placed towards the ossa pubis and sacrum; but, in the impregnated state, it becomes more oval, according to the degree of its distention. For the convenience of description, and for some practical purposes, the uterus is distinguished into three parts; the fundus, the body, and the cervix. The upper part is called the fundus, the lower the cervix, the space between them, the extent of which is undefined, the body. The uterus is about three inches in length, about two in breadth at the fundus and one at the cervix. Its thickness is different at the fundus and cervix, being at the former usually rather less than half an inch, and at the latter somewhat more; and this thickness is preserved throughout pregnancy, chiefly by the enlargement of the veins and lymphatics; there being a smaller change in the size of the arteries. But there is so great a variety in the size and dimensions of the uterus in different women, independent of the states of virginity, marriage, or pregnancy, as to prevent any very accurate mensuration. The cavity of the uterus corresponds with the external form; that of the cervix leads from the os uteri, where it is very small, in a straight direction, to the fundus, where it is expanded into a triangular form, with two of the angles opposed to the entrance into the fallopian tubes; and at the place of junction between the cervix and the body of the uterus the cavity is smaller than it is in any other part. There is a swell, or fulness, of all the parts towards the cavity, which is sometimes distinguished by a prominent line running longitudinally through its middle. The villous coat of the vagina is reflected over the os uteri, and is continued into the membrane which lines the cavity of the uterus. The internal surface of the uterus is corrugated in a beautiful manner, but the rugæ, or wrinkles, which are longitudinal, lessen as they advance into the uterus, the fundus of which is smooth. In the intervals between the rugæ are small orifices, like those in the vagina, which discharge a mucus, serving, besides other purposes, that of closing the os uteri very curiously and perfectly during pregnancy. The substance of the uterus, which is very firm, is composed of arteries, veins, lymphatics, nerves, and muscular fibres, curiously interwoven and connected together by cellular membrane. The muscular fibres are of a pale colour, and appear also in their texture somewhat different from muscular fibres in other parts of the body. The arteries of the uterus are the spermatic and hypogastric. The spermatic arteries arise from the anterior part of the aorta, a little below the emulgents, and sometimes from the emulgents. They pass over the psoæ muscles behind the peritonæum, enter between the two laminæ or duplicatures of the peritonæum, which form the broad ligaments of the uterus, and proceed to the uterus, near the fundus of which they insinuate themselves, giving branches in their passage to the ovaria and fallopian tubes. The hypogastric arteries are on each side a considerable branch of the internal iliacs. They pass to the sides of the body of the uterus, sending off a number of smaller branches, which dip into its substance. Some branches also are reflected upwards to the fundus uteri, which anastomose with the spermatic arteries, and others are reflected downwards, supplying the vagina. The veins which reconduct the blood from the uterus are very numerous, and their size in the unimpregnated state is proportioned to that of the arteries; but their enlargement during pregnancy is such, that the orifices of some of them, when divided, will admit even of the end of a small finger. The veins anastomose in the manner of the arteries, which they accompany out of the uterus, and then, having the same names with the arteries, spermatic and hypogastric, the former proceeds to the vena cava on the right side, and on the left to the emulgent vein; and the latter to the internal iliac.

From the substance and surfaces of the uterus an infinite number of lymphatics arise, which follow the course of the hypogastric and spermatic blood vessels. The first pass into the gland of the internal iliac plexus, and the other into the glands which are situated near the origin of the spermatic arteries. Of these Nuck first gave a delineation.

The uterus is supplied with nerves from the lower mesocolic plexus, and from two small flat circular ganglions, which are situated behind the rectum. These ganglions are joined by a number of small branches from the third and fourth sacral nerves. The ovaria derive their nerves from the renal plexus. By the great number of nerves these parts are rendered very irritable, but it is by those branches which the uterus receives from the intercostal that the intimate consent between it and various other parts is chiefly preserved. The muscular fibres of the uterus have been described in a very different manner by anatomists, some of whom have asserted, that its substance was chiefly muscular, with fibres running in transverse, orbicular, or reticulated order, whilst others have contended that there were no muscular fibres whatever in the uterus. In the unimpregnated uterus, when boiled for the purpose of a more perfect examination, the former seems to be a true representation; and when the uterus is distended towards the latter part of pregnancy, these fibres are very thinly scattered; but they may be discovered in a circular direction at the junction between the body and the cervix of the uterus, and surrounding the entrance of each fallopian tube in a similar order. Yet it does not seem reasonable to attribute the time of labour to its muscular fibres only, if we are to judge of the power of a muscle by the number of fibres of which it is composed, unless it is presumed that those of the uterus are stronger than in common muscles. With respect to the glands of the uterus, none are discoverable dispersed through its substance upon the inner surface of the cervix; between the rugæ there are lacunæ which secrete mucus, and there are small follicles at the edge of the os uteri. These last are only observable in a state of pregnancy, when they are much enlarged. From the angles at the fundus of the uterus two processes of an irregularly round form originate, called, from the name of the first describer, the fallopian tubes. They are about three inches in length, and, becoming smaller in their progress from the uterus, have an uneven, fringed termination, called the fimbriæ. The canal which passes through these tubes is extremely small at their origin, but it is gradually enlarged, and terminates with a patulous orifice, the diameter of which is about one-third of an inch, surrounded by the fimbriæ. It is also lined by a very fine vascular membrane, formed into serpentine plicæ. Through this canal, the communication between the uterus and ovaria is preserved. The fallopian tubes are wrapped in duplicatures of the peritonæum, which are called the broad ligaments of the uterus; but a portion of their extremities thus folded hangs loose on each side of the pelvis. From each lateral angle of the uterus, a little before and below the fallopian tubes, the round ligaments arise, which are composed of arteries, veins, lymphatics, nerves, and a fibrous structure. These are connected together by cellular membrane, and the whole is much enlarged during pregnancy. They receive their outward covering from the peritonæum, and pass out of the pelvis through the ring of the external oblique muscle to the groin, where the vessels subdivide into small branches, and terminate at the mons veneris and contiguous parts. From the insertion of these ligaments into the groin, the reason appears why that part generally suffers in all the diseases and affections of the uterus, and why the inguinal glands are in women so often found in a morbid or enlarged state. The duplicatures of the peritonæum, in which the fallopian tubes and ovaria are involved, are called the broad ligaments of the uterus. These prevent the entanglement of the parts, and are conductors of the vessels and nerves, as the mesentery is of those of the intestines. Both the round and broad ligaments alter their position during pregnancy, appearing to rise lower and more forward than in the unimpregnated state. Their use is supposed to be that of preventing the descent of the uterus, and to regulate its direction when it ascends into the cavity of the abdomen; but whether they answer these purposes may be much doubted. The use of the womb is for menstruation, conception, nutrition of the fetus, and parturition. The uterus is liable to many diseases; the principal of which are prolapsus uteri, procidentia uteri, hydatids, dropsy of the uterus, or tympanites uteri, moles, ulceration, &c.

UTERUS (Retroversion of). See MIDWIFERY.

UTICA, a celebrated city of Africa, on the coast of the Mediterranean, on the same bay as Carthage. It became the metropolis of Africa, after the destruction of Carthage in the third Punic war. It is celebrated for the death of Cato, who from thence is called Uticensis.

UTI'LITY. *s.* (*utilité*, Fr. *utilitas*, Latin.) Usefulness; profit; convenience; advantageousness (*Bacon*).

U'TMOST. *a.* (uꞇmœꞅꞇ, Sax. from uꞇꞇeꞃ.) 1. Extreme; placed at the extremity (*Milton*). 2. Being in the highest degree (*Shakspeare*).

U'TMOST. *s.* The most that can be; the greatest power; the highest degree; the greatest effort (*South*)

UTRECHT, one of the provinces of Holland, 30 miles long and 20 broad; bounded on the N. by Holland and the Zuider Zee, E. and S. by Gelderland, and W. by Holland. The soil is fertile, and there are no inundations to fear as in the other provinces.

UTRECHT, a fortified city of Holland, capital of a province of the same name, with a famous university. It is of a square form, about three miles in circumference, without its four suburbs, which are considerable. The inhabitants are estimated at 20,000. The steeple of the cathedral is very high, and the handsomest in Holland. There is a great number of churches and hospitals; and the townhouse is a noble building. The principal manufactures are silk and fire-arms; and in a place called the Mall is an extensive foundery for cannon balls. Two canals, called the New Graft and the Vaert, run through the city, and over them are thirty-six stone bridges. The environs are full of gardens, walks, and groves, which, added to the purity of the air, render Utrecht one of the most agreeable places for residence in these parts. Here the union of the Seven United Provinces was begun in 1579; and here was concluded, in 1713, the peace which terminated the wars of queen Anne. Utrecht surrendered to the Prussians in 1787, and to the French in 1795, each time without resistance. It is seated on the Rhine, 18 miles S.E. of Amsterdam, and 35 N.N.W. of Nimeguen. Lon. 5. 8 E. Lat. 52. 6 N.

UTRICULARIA, a genus of plants of the class diandria, and order monogynia; and in the natural system arranged under the 24th order, corydales. The calyx is ringent, with a nectarium resembling a spur; the corolla diphyllous and equal; the capsule unilocular. There are 13 species, two of which are natives of Britain. They have been applied to no particular use.

UTRICULES, in botany. (from *uter*, a wine-bag or bottle.) Reservoirs to secrete and receive the sap. See VESSELS.

Also the bags or bladders at the root of utricularia.

U'TTER. *a.* (uττeꞃ, Saxon.) 1. Situate on the outside, or remote from the centre (*Milton*). 2. Placed beyond any compass; out of any place (*Milton*). 3. Extreme; excessive; utmost (*Milton*). 4. Complete; total (*Clarendon*). 5. Peremptory (*Clarendon*). 6. Perfect; mere (*Atterbury*).

To U'TTER. *v. a.* 1. To speak; to pronounce; to express (*Shakspeare*). 2. To disclose; to discover; to publish (*Raleigh*). 3. To sell; to vend (*Carew*). 4. To disperse; to emit at large (*Swift*).

U'TTERABLE. *a.* (from *utter.*) Expressible; such as may be uttered.

U'TTERANCE. *s.* (from *utter.*) 1. Pronunciation; manner of speaking (*Spenser*). 2. (*outrance*, Fr.) Extremity; terms of extreme hostility: out of use (*Shakspeare*). 3. Vocal expression; emission from the mouth (*Holder*).

U'TTERER. *s.* (from *utter.*) 1. One who pronounces. 2. A divulger; a discloser (*Sp.*). 3. A seller; a vender.

U'TTERLY. *ad.* (from *utter.*) Fully; completely; perfectly (*Clarendon*).

U'TTERMOST. *a.* (from *utter.*) 1. Extreme; being in the highest degree (*Milton*). 2. Most remote (*Abbot*).

U'TTERMOST. *s.* The greatest (*Hooker*).

UTTOXETER, a town in Staffordshire, with a market on Wednesday; seated on a rising ground, near the river Dove, 13 miles N.E. of Stafford, and 136 N.N.W. of London. Lon. 1. 50 W. Lat. 53. 10 N.

UVA PASSA MAJOR. Passula major. The raisin. The dried fruit of the vitis vinifera of Linnéus. Vitis foliis lobatis sinuatis nudis. C. O. pentandria, monogynia. Raisins are prepared by immersing the fresh fruit into a solution of alkaline salt and soap lye, made boiling hot, to which is added some olive-oil, and a small quantity of common salt, and afterwards drying them in the shade. They are used as agreeable, lubricating, acescent sweets in pectoral decoctions, and for obtunding the acrimony of other medicines, and rendering them grateful to the palate and stomach. They are directed in the decoctum hordei comp. tinctura sennæ, and tinctura cardamomi comp.

UVA PASSA MINOR. Passa corinthiaca. The currants. The dried fruit of the vitis corinthica. Their virtues are similar to those of the uva passa major.

UVA URSI. Trailing arbutus, or bear-berry. Arbutus uva ursi of Linnéus. Arbutus caulibus procumbentibus, foliis integerrimus. C. O. decandria, monogynia. This plant, though employed by the ancients in several diseases requiring adstringent medicines, had almost entirely fallen into disuse until the middle of the present century, when it first drew the attention of physicians as a useful remedy in calculous and nephritic complaints, which diseases it appears to relieve by its adstringent qualities.

UVARIA, in botany, a genus of the class polyandria, order polygynia. Calyx three-leaved; petals six; berries numerous, pendulous, four-seeded. Eleven species, shrubs of India, Japan, or China.

UVEA. (from *uva*, an unripe grape.) The posterior lamina of the iris; so called, because in beasts, which the ancients chiefly dissected, it is of the colour of unripe grapes.

VULCAN, VULCANUS, a god of the ancients, who presided over fire, was the patron of all artists who worked iron and metals. He was son of Juno alone, and, according to Homer, he was son of Jupiter and Juno. Vulcan, it is said, was educated in heaven with the rest of the gods, but his father kicked him down from Olympus, when he attempted to deliver his mother, who had been fastened by a golden chain for her insolence. He was nine days in coming from heaven upon earth, and he fell in the island of Lemnos. Having broken his leg in the fall, he ever after remained lame. He fixed his residence in Lemnos, where he raised forges to work metals, and taught the inhabitants all the useful arts. Vulcan has been celebrated by the ancient poets for the ingenious works and automatical figures which he made, and it is said, that at the request of Jupiter he made the first woman that ever appeared on earth, well known under the name of Pandora. (See PANDORA.) The Cyclops of Sicily were his ministers and attendants, and with him they fabricated, not only the thunderbolts of Jupiter, but also arms for the gods and the most celebrated heroes. His forges were supposed to be under mount Ætna, in the island of Sicily. The amours of Vulcan are not numerous. Venus is universally acknowledged to have been the wife of Vulcan, but her infidelity is well known, as well as her amours with Mars. (See ALECTRYON.) The worship of Vulcan was well established, particularly in Egypt, at Athens, and at Rome. A calf and a boar pig were the principal vic-

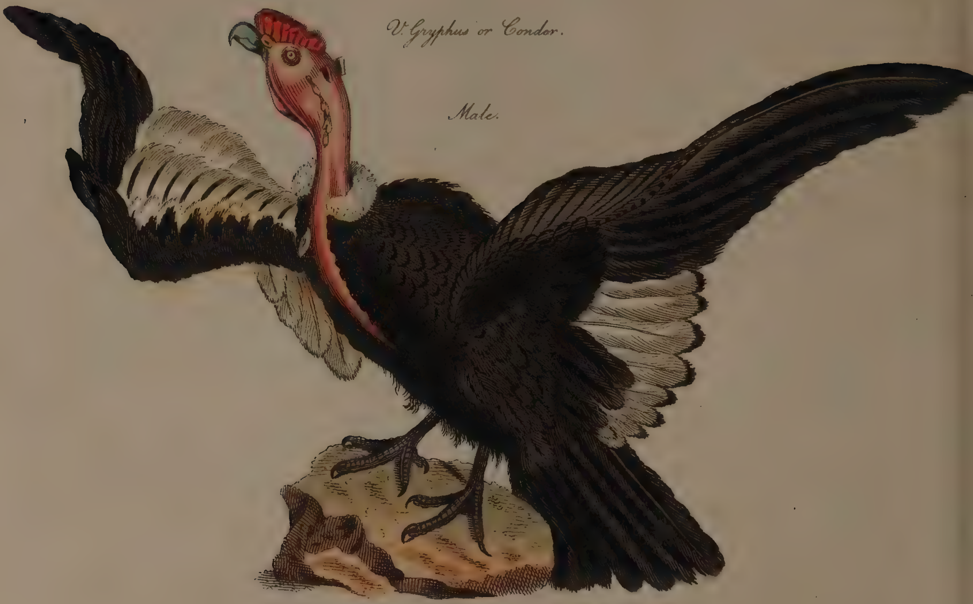
NATURAL HISTORY.

Vultur.

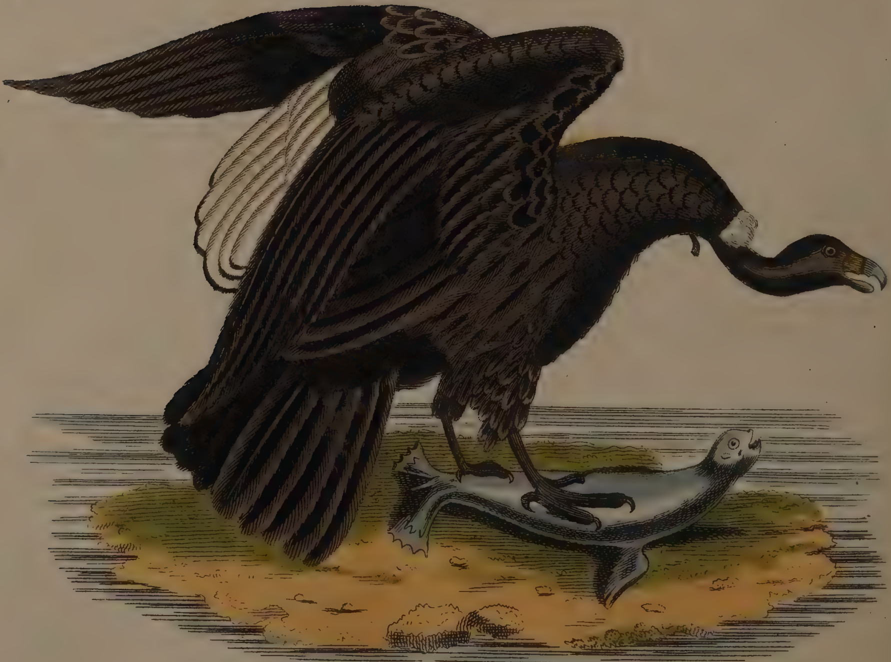
PL.CLXXXIX.

V. Gryphus or Condor.

Male.



Female.



London, Published by Sherwood & Co. Paternoster Row, Decr. 1, 1812.

tims offered to him. Vulcan was generally represented as covered with sweat, blowing with his nervous arm the fires of his forges, and sometimes holding a hammer raised in the air ready to strike, while with the other hand he turns with pincers a thunderbolt on an anvil. Vulcan has received the names of Mulciber, Pamphanes, Clytotechnes, Pandamator, Cyllopodes, Chalaipoda, &c. all expressive of his lameness and his profession. He was father of Cupid by Venus.

VULCANALIA, festivals in honour of Vulcan, brought to Rome from Præneste. The streets were illuminated, fires kindled every where, and animals thrown into the flames, as a sacrifice to the deity.

VULCANO. See VOLCANO.

VU′LGAR. *a.* (*vulgaire*, Fr. *vulgaris*, Lat.) 1. Plebeian; suiting to the common people; practised among the common people (*Addison*). 2. Vernacular; national (*Fell.*). 3. Mean; low; being of the common rate (*Broome*). 4. Public; commonly bruited (*Shakspeare*).

VU′LGAR. *s.* (*vulgaire*, Fr.) The common people (*King Charles*).

VU′LGARISM. *s.* (from *vulgar.*) Grossness; meanness; vulgarity (*Reynolds*).

VULGA′RITY. *s.* (from *vulgar.*) 1. Meanness; state of the lowest people (*Brown*). 2. Mean or gross mode (*Dryden*).

VU′LGARLY. *ad.* (from *vulgar.*) Commonly; in the ordinary manner; among the common people (*Hammond*).

VULGATE, a very ancient Latin translation of the Bible, and the only one the church of Rome acknowledges authentic. (See BIBLE.) The ancient vulgate of the old testament was translated almost word for word from the Greek of the LXX. The author of the version is not known, nor so much as guessed at.

VULGATE OF THE NEW TESTAMENT. This the Romanists generally hold preferable to the common Greek text, in regard it is this alone, and not the Greek text, that the council of Trent had declared authentic. Accordingly that church has, as it were, adopted this edition. The priests read no other at the altar, the preachers quote no other in the pulpit, nor the divines in the schools.

VU′LNERABLE. *a.* (*vulnerabilis*, Latin.) Susceptive of wounds; liable to external injuries (*Shakspeare*).

VU′LNERARY. *a.* (*vulnerarius*, Latin.) Useful in the cure of wounds (*Wiseman*).

To VU′LNERATE. *v. a.* (*vulnero*, Latin.) To wound; to hurt (*Glanville*).

VU′LPINE. *a.* (*vulpinus*, Lat.) Belonging to a fox.

VULTUR. Vulture. In zoology, a genus of the class aves, order accipitres. Bill straight, hooked at the point; head bare of feathers, with a naked skin in front; tongue cleft, neck retractile. Seventeen species, scattered over the globe; all of them exotic to our own country.

These are a rapacious tribe, feeding on carcases, however putrid; but, unless pressed by hunger, seldom attacking living animals; bold, gregarious, fly slowly, unless when very high in the air, and have an exquisite sense of smell. Tongue large, fleshy; head, and often the cheeks, chin and neck, on the upper part, naked; legs and feet strong, mostly covered with scales; first joint of the middle toe generally connected to the outer by a strong membrane; wings lined on the inside with down.

The following are the principal species:

1. V. gryphus. Of prodigious size; a caruncle on the crown as long as the head; throat naked. Inhabits South America; measures, with the wings extended, from tip to tip, not less than from twelve to sixteen feet; builds under the protection of the highest rocks; lays two white eggs. It is a bird of fearful and enormous power, but, happily for mankind, in every country extremely rare. Feuillée has well described a specimen that fell a prey to his own courage.

"I discovered," says he, "in the valley of Ilo, in Peru, a condor perched on a high rock before me; I approached within musket shot, and fired; but as my piece was only loaded with swan-shot, the lead was not able sufficiently to pierce the bird's feathers. I perceived, however, by its manner of flying, that it was wounded; as it rose heavily, and with a good deal of difficulty reached another rock, about five hundred yards distant, upon the shore; I therefore loaded again with a ball, and hit the bird under the throat, which made it mine. I accordingly ran up to seize it; but even in death it was terrible, and defended itself on its back, with its claws extended against me; so that I scarce knew how to lay hold of it. Had it not been mortally wounded I should have found it no easy matter to take it; but I at last dragged it down from the rock, and, with the assistance of one of the seamen, carried it to the tent, to make a coloured drawing.

"The wings of this bird, which I measured exactly, were eleven feet four inches, from one extremity to the other: the great feathers, of a beautiful shining black, were two feet two inches long. The thickness of the beak was proportionable to the rest of the body; the length about four inches; the point hooked downwards, and white at its extremity, the other part being of a jet black. A short down, of a brown colour, covered the head; the eyes were black, and surrounded with a circle of reddish brown; the feathers on the breast, neck, and wings, were of a light brown; those on the back rather darker; its thighs were covered with brown feathers down to the knee: the thigh-bone was ten inches long; the leg five inches: the toes were three before and one behind: the latter was an inch and a half long, with a single joint; and the claw with which it was armed was black, and three quarters of an inch: the other claws were in the same proportion; and the leg and toes covered with black scales.

"These birds usually frequent the mountains, where they find their prey. They never descend to the sea shore, but in the rainy season; sensible of cold, they repair there for warmth. Though these mountains are situated in the torrid zone, the cold is often very severe; for throughout almost the whole year they are covered with snow; but especially during the winter, when it is in great depth upon them. The small quantity of nourishment which these birds find on the sea-coast, except when the tempest drives in some of the larger fishes, obliges the condor to remain there but a short time. He usually comes to the coast at the approach of evening, remains there all night, and returns again in the morning."

This condor, however, seems to have been much inferior in size to those described by Acosta, Garcilasso, Demarchais, and some other travellers, who affirm they have seen them eighteen feet from tip to tip of the wing; that their beaks are so strong and sharp that they can easily pierce the body of a cow; that two of them can attack and devour one entirely; that they sometimes singly oppose a man. The Indians, in like manner, who are more accustomed to see them, declare, that they can carry off a deer or a calf as easily as an eagle does a rabbit; that their bodies are as large as a sheep; that their flesh is tough, and smells like carrion: their sight piercing, and their looks cruel. The Spaniards themselves seem afraid of their depredations; and are not without instances of their carrying off children of ten or twelve years old. Their flight is terrible; and, when they alight, one is stunned with their noise. Condamine asserts, that he has often seen them in the province of Quito, and on the borders of the Maragnon, swimming above a flock of sheep, some of which they would have carried off, had they not been scared by the shepherds. It is reported that the Indians of these countries catch them, by working a piece of viscous clay into the form of a child, upon which they dart with such rapidity, that their claws are entangled, so as to prevent their escape. De Solis, alluding to this bird, says, that there were among the curiosities of the emperor of Mexico birds of such extraordinary fierceness and size, as to appear monsters; and that he had been informed that each of them could devour a sheep at a single meal.

After reading the history of these birds, the fiction of Virgil's harpies appears less extravagant, or rather seems to sink into mere narrative. Later writers, however, have greatly softened these accounts, and assure us, that the countenance of the condor is not so terrible as the first travellers have painted it; and that their nature appears equally mild with that of the eagle or the vulture.

Mr. Ray, and almost all the naturalists after him, have classed the condor in the genus of the vultures, on account of the nakedness of his head and neck. His dispositions, however, and habits, seem as strongly to plead his affinity to the eagles: he is rapid, fierce, and courageous, and, like them, lives by the chace. His preferring live prey to carrion, his activity, and every habit, seem to bring him nearer to the eagle than to the vulture tribes.

However this may be, it is probable that this extraordinary bird is not confined solely to South America. Some are of opinion that it is also to be found in Africa, Asia, and even in some parts of Europe. Garcilasso imagines it to be the same bird with the roc, so famous in the fables of the Arabian writers. Probably the great bird mentioned in the voyages to the South Sea, which is said to be nearly as large as an ostrich, is the same with the condor. The bird of prey, in the neighbourhood of Tarnassar in the East Indies, and the vulture of Senegal, which carries off children, are of the same species with that above described. Several authors mention a similar bird, sometimes seen in Russia, Lapland, and Germany. Buffon mentions a large bird shot in France, eighteen feet in breadth, which he supposes to be the condor, not only on account of its size, but of its pie colour, resembling those birds in Peru. This naturalist deems it scarcely probable, that a bird which claims the first rank in this class of beings, should be confined to a single district of the earth.

2. V. papa. King of the vultures. Nostrils carunculate; crown and neck naked.

This bird is a native of America, and not of the East Indies, as those who make a trade of shewing birds would induce us to believe. It is larger than a turkey cock, but is chiefly remarkable for the odd formation of the skin of the head and neck, which are bare. This skin arises from the base of the bill, and is of an orange colour; from whence it stretches on each side to the head; from thence it proceeds like an indented comb, and falls on either side, according to the motion of the head. The eyes are surrounded by a red skin; and the iris has the colour and lustre of pearl. The head and neck are without feathers, covered with a flesh-coloured skin on the upper part, a fine scarlet behind the head, and a duskier coloured skin before: farther down, behind the head, arises a little tuft of black down, from whence issues and extends beneath the throat, on each side, a wrinkled skin of a brownish colour, mixed with blue, and reddish behind: below, on the naked part of the neck, is a collar, formed by soft longish feathers, of a deep ash colour, which surround the neck, and cover the breast before. Into this collar the bird sometimes withdraws its whole neck, and sometimes a part of its head; so that it looks as if it had withdrawn its neck into its body

This bird, which we have placed at the head of the vulture tribe, on account of the superior beauty of his external appearance, is no way distinguished from the rest by the generosity of his manners, or the delicacy of his appetite. He attacks only the weaker animals, devouring rats, lizards, serpents, and every kind of excrement or filth: flies very high.

3. V. aura. Carrion vulture: Body grey-brown; quill feathers black; bill white. Another variety: body black; quill feathers brown; bill cinerous.

This bird has been classed, by most naturalists, among the vultures, because it is not only possessed of the same habits, but, like the rest of this genus, has the head and neck naked of feathers. The wrinkled skin with which these parts are covered is variegated with blue, white, and red colours, somewhat resembling that of a turkey-cock; a circumstance from which these birds have been called gallinassos by the Portuguese and Spaniards. It is about the size of a wild goose; its wings, when folded, extend beyond the extremity of the tail: the feathers of the whole body are blackish, with a shade of dark green and purple. The beak is white, the legs and feet of a fleshy colour.

This bird is an inhabitant of Brazil, Guiana, Peru, and some of the West India islands. In its manners it is more cowardly, foul, and voracious, than perhaps any of the vultures. If its high and rapid flight were attended with a proportionable degree of courage, it might live by the chace; incapable, however, of facing danger, it contents itself with carrion, and every kind of filth, and will not attack an animal even when wounded or asleep, unless able to overpower it, by assembling a great flock of those of its kind.

The Brazilian vultures are generally seen in large flocks, fly very high in the air, and pass the night upon the tallest trees, or on the most inaccessible rocks, from which they repair by day to the neighbourhood of towns, where they alight on some eminence to watch their prey. Their sight and smell are remarkably penetrating; they discern their food at a great distance, which, as soon as discovered, they all fall upon it at once, and devour it in silence, till they are frequently so glutted that they are unable to rise from the ground. As often as this is the case, they are said to have the power of vomiting their food, till their bodies are sufficiently lightened, for the purpose of making their escape. In some parts of South America, where the hunters destroy beasts merely for the skin, the vultures follow in their train in vast numbers. The numberless carcases which are flayed, and exposed to the air, would soon render these parts unhealthy by their putrefaction, were it not for the ministry of the vultures. No sooner do they observe a carcase abandoned, than, by a general call, they all alight upon it, and instantly devour it to the bones, which they leave as bare as if they had been scraped with a knife. The Spaniards and Portuguese, who carry on a trade in hides from these quarters, take these vultures under their protection, from the benefit they render them in preserving the purity of the air, which the putrefaction of so many carcases could not fail to corrupt. They eat in conjunction with the dogs.

From this circumstance, in Guiana, Brazil, and New Spain, they are extremely numerous; but their flesh is altogether useless for food. From the foul nature of their subsistence it contracts a putrid flavour which nothing can remove. In vain the natives try to conquer it, by taking away the entrails and the rump, or by washing and applying spices; their hard, skinny, and fibrous flesh has imbibed a stench which nothing can either remove or render supportable.

It is curious to be a spectator of the hostilities between the crocodile and the Brasilian vultures: of all animals they are perhaps most at enmity. The female crocodile, which in the rivers of America grows to the size of twenty-seven feet, lays her eggs, to the number of two or three hundred, in the sands, by the side of the water, where they are chiefly hatched by the heat of the climate. The crocodile takes every precaution, while depositing her burden, to conceal the place from every other creature; but is unable to elude the penetration of the vulture. A number of them sit silent and unseen among the branches of a neighbouring forest, while she is employed in burying her eggs, and view her operations with the eager expectation of succeeding plunder. They wait patiently till the crocodile has completed the number, covered them carefully under the sand, and has retired to a distance: then, as Goldsmith describes, they attack all together, encouraging each other with their cries, hook up the sand in a moment, lay the eggs bare, and devour the whole brood without remorse.

This bird is to be found also on the continent of Africa, whence, probably, it has found its way into the New World. Their manners at the Cape of Good Hope are described by Kolben, who had often been a spectator of their mode of anatomising the dead bodies of cows, oxen, and wild animals. "These birds," says he, "separate the flesh from the skin and the bones with such art, that they leave only the bare skeleton, covered, however, with the skin so entire and unbroken, that it is impossible to perceive that the carcase is empty, without a narrow examination. In performing this operation, they first make an aperture in the belly of the animal, from whence they tear out the entrails, and devour them: they then enter the empty space thus formed, and separate the flesh from the skin and bones, without discomposing either. They attack their prey by surprise; if an ox, who is left to return from the yoke to his stall alone, should chance to lie down and rest by the way, he is no sooner perceived by the vultures, than they inevitably fall upon him, and devour him. When they attack an ox in the fields, they generally assemble to the number of an hundred, and sometimes more, and thus overpower him by a general onset."

In Egypt vultures are held in great veneration, because they destroy the serpents and other noxious animals with which it is infested. Dr. Shaw informs us that they are to be seen in great numbers in the neighbourhood of Grand Cairo; and that, from the harmlessness of their nature, they are regarded as sacred by the Mahometans. The pacha orders two oxen every day for their maintenance; perhaps from superstitious motives, or probably in consideration of their services, in removing the carrion and filth from that great city.

In Europe there are several of these birds; as, the ash-coloured, the golden, the brown, and the crested. There, however, they are far from being numerous; they produce young only once in a year, and, according to Aristotle, lay only one or two eggs. They build their nests commonly in such high and inaccessible situations, that it is but rare to detect them. They inhabit, from choice, the most deserted and mountainous countries during summer: it is not till the frost and snow compel them that they retire into lower and warmer situations. They seem more sensible of cold than the generality of eagles, few of them being found in the northern countries. Linnéus, who enumerates the birds of Sweden, takes no notice of the vulture. Buffon, however, mentions one he had sent him from Norway.

4. V. cristatus. Crested vulture. Body blackish-red; head crested; breast rufous; legs naked. This vulture is inferior in size to the preceding; its magnitude, however, has been deemed sufficient to entitle it to a place among the vultures. Its bill is black, and hooked at the end; the feathers of a brownish black, and the legs yellow. When upon the ground, it raises two tufts of feathers on the sides of its head, resembling horns; which, while the bird is on wing, are not perceptible. The wings of this bird, when extended, are six feet; his flight is more rapid than the rest of the vulture tribes, as his courage and activity are greater. He pursues and preys upon almost every species of bird; but is most successful in chasing hares, rabbits, young foxes, fawns, and fishes. When pursuing his prey, his flight seems to be the effect of much effort; and it is attended with a great noise. His favourite food is the entrails of animals, whether dead or alive; and though remarkable for voracity, he can endure an abstinence of fourteen days. Gesner relates, that two of this species were caught in the province of Alsace, in a nest constructed upon a tall oak not far from the tower of Misen.

5. V. percnopterus. Aquiline vulture. Quill-feathers black, the outer edges, except of the outermost, hoary. Another variety with the body reddish-ash, spotted with brown, the legs naked. Inhabits Egypt, Syria, and Persia; is encouraged in Cairo to devour dead carcasses, and in Palestine to destroy the vast multitudes of mice that swarm in the fields. In Egypt it was formerly a capital crime to destroy one. See Nat. Hist. Pl. CLXXXIX.

VULTURE, in ornithology. See VULTUR and FALCO.

VU'LTURINE. *a.* (*vulturinus*, Lat.) Belonging to a vulture.

VULVA. Pudendum muliebre. The parts of generation proper to women.

VULVARIA. (from *vulva*, the womb; so named from its smell or use in disorders of the womb.) See ATRIPLEX OLIDA.

VURLA, a seaport of Turkey in Asia, in Natolia, situated on the S. side of the gulf of Smyrna, on a bay to which it gives name, 21 miles W. of Smyrna. Lon. 27. 58 E. Lat. 38. 27 N.

UVULA. (dim. of *uva*, a grape.) Columella. The small conical fleshy substance hanging in the middle of the velum pendulum palati, over the root of the tongue. It is composed of the common membrane of the mouth, and a small muscle resembling a worm, which arises from the union of the palatale bone, and descends to the tip of the uvula. It was called palato staphilinus by Douglas, and staphilinus epistaphilinus by Winslow. By its contraction the uvula is raised up.

UVULARIA. (from *uvula*, because it cured diseases of the uvula.) The plant which bears this epithet in some pharmacopœias is the ruscus hypoglossum of Linnéus: it was formerly used against relaxation of the uvula, but now laid aside for more adstringent remedies.

UVULARIA, in botany, a genus of the class hexandria, order monogynia. Corol six-petalled, erect; petals with each a nectariferous cavity at the base; filaments very short. Six species, natives of the East or West Indies; one of Bohemia.

UXBRIDGE, a corporate town in Middlesex, with a market on Thursday. The Coln runs through it in two streams, and over the main stream is a stone bridge. A treaty was carried on here between Charles I. and the parliament, in 1644; and the house in which the plenipotentiaries met is still called the Treaty House. Near this town are the remains of an ancient camp. Uxbridge is 15 miles W. by N. of London. Lon. 0. 23 W. Lat. 51. 31 N.

UXO'RIOUS. *a.* (*uxorius*, Lat.) Submissively fond of a wife; infected with connubial dotage (*Milton*).

UXO'RIOUSLY. *ad.* (from *uxorious.*) With fond submission to a wife (*Dryden*).

UXO'RIOUSNESS. *s.* (from *uxorious.*) Connubial dotage; fond submission to a wife.

UZBEC TARTARY. See TARTARY.

UZEDA, a town of Spain, in New Castile, capital of a duchy of the same name, with a castle. It is seated on the Cogolludo, 20 miles N. by W. of Alcala, and 26 N.N.E. of Madrid. Lon. 3. 13 W. Lat. 40. 46 N.

UZEL, a town of France, in the department of the North Coast, 17 miles S.W. of St. Brieux. Lon. 2. 52 W. Lat. 48. 16 N.

UZES, a town of France, in the department of Gard, seated in a country abounding in corn, oil, silk, and good wine, 12 miles N. of Nismes, and 20 S.W. of Orange. Lon. 4. 27 E. Lat. 44. 2 N.

W.

W, A letter peculiar to the northern languages and people; as the English, Dutch, Polish, and others of Teutonic and Sclavonic original.

The form and the sound of *w* are excluded from all the languages derived from the Latin; though it is not improbable, says Dr. Johnson, that by our *w* is expressed the sound of the Roman *v*, and Eolic *f*. However, the *w* is sometimes admitted into the French, Italian, &c. in proper names, and other terms borrowed from the languages in which it is originally used.

In English, the *w* is usually a consonant; and as such, may go before all the vowels, except *u*; as in *want*, *weapon*, *winter*, *world*, &c.

It is sometimes also a vowel; and, as such, follows any of the vowels, *a*, *e*, *o*; and unites with them into a kind of double vowel, or diphthong; as in *law*, *ewe*, *sow*, &c. The English *w* is sounded as in Latin *u*, in *quantum*, *suadeo*, *lingua*. Its sound is also commonly like the gross, or full *u*, rapidly pronounced. In French, the sound of the *w* does not differ from that of the single *u*, or rather *ou*. See U.

WAAG, a river of Hungary, which rises in the Carpathian mountains, and falls into the Danube, opposite to the island of Schut.

WAAL, a river of the United Provinces, being the S. branch from the Rhine below Emmerick. It runs from E. to W. through Guelderland, passes by Nimeguen, Tiel, Bommel, and Gorcum, and falls into the Maese, at Briel.

To WA'BBLE. *v. n.* (a low barbarous word.) To move from side to side; to change direction (*Moxon*).

WACHENDORFIA, in botany, a genus of the class triandria, order monogynia. Corol six-petalled, unequal, inferior; capsule three-celled, superior. Five species, natives of the Cape. The three following are cultivated:

1. W. thyrsiflora. Simple-stalked wachendorfia. With a thick tuberose root; flowers in shape like those of the yellow asphodel, forming a loose spike, the upper almost upright, the lower nodding; hairy, and saffron without, smooth, bright yellow within.

2. W. paniculata. Panicled wachendorfia. Root perennial, creeping; stalk a foot high; flowers racemed, downy, all directed downwards.

3. W. hirsuta. Hairy wachendorfia. Differs from the last chiefly in having hairy leaves.

WACHENHEIM, a town of Germany, in the palatinate of the Rhine, 15 miles W. of Manheim, and 31 E. of Deux Ponts. Lon. 8. 16 E. Lat. 49. 20 N.

WACHOVIA, a tract of land in N. Carolina, situate between the rivers Dan and Yadkin, 10 miles S. of Pilot Mountain, in the county of Surry. It consists of 100,000 acres, purchased by the Moravians, in 1751, and named by them from an estate of count Zinzendorf's in Austria. In 1755, by an act of assembly, it was made a separate parish, called Dobb's parish, and it now contains several flourishing settlements, of which Salem is the principal.

WACHTENDONCK, a town of Prussian Guelderland, seated in a morass, on the river Niers, five miles S. of Gueldres. Lon. 6. 7 E. Lat. 51. 23 N.

WACKE, or WACKEN, in mineralogy, a species of BASALTES, which see.

WADD, or WADDING, in gunnery, a stopple of paper, hay, straw, old rope-yarns, or tow, rolled firmly into the form of a ball, and forced into a gun upon the powder, to keep it close in the chamber; or put up close to the shot, to keep it from rolling out, as well as to prevent the powder, when fired, from dilating round the sides of the ball, by its windage, as it passes through the chace, which would considerably diminish the effort of the powder.

WADD. See PLUMBAGO.

WA'DDING. *s.* (from *wad*; *vad*, Islandic.) A kind of soft stuff loosely woven, with which the skirts of coats are stuffed out.

To WA'DDLE. *v. n.* (*wagghelen*, Dutch.) To shake, in walking, from side to side; to deviate in motion from a right line (*Pope*).

To WADE. *v. n.* (from *vadum*, Latin.) 1. To walk through the waters; to pass water without swimming (*More*). 2. To pass difficultly and laboriously (*Addison*).

WADSTENA, a town of Sweden, in the province of E. Gothland, remarkable for its castle, built by Gustavas Vasa, in 1544, and inhabited by his son Magnus, who was insane. It is seated on the E. side of the lake Wetter, 160 miles S.W. of Stockholm. Lon. 15. 37 E. Lat. 58. 18 N.

WA'FER. *s.* (*wafel*, Dutch.) 1. A thin cake (*Pope*). 2. The bread given in the eucharist by the Romanists (*Hall*). 3. Paste made to close letters.

Wafers for sealing letters are made by mixing fine flour with glair of eggs, isinglass, and a little yeast, and beating the mass into a paste; then spreading it, when thinned with gum-water, on even tin plates, and drying it in a stove, and cutting it for use. The different colours may be given by tinging the paste, with brazil or vermilion for red; indigo, or verditer, &c. for blue; saffron, turmeric, or gamboge, &c. for yellow, &c.

To WAFT. *v. a.* (probably from *wave.*) 1. To carry through the air, or on the water (*Pope*). 2. To buoy; to make float; to hinder from sinking (*Brown*). 3. To beckon; to inform by a sign of any thing moving.

To Waft. *v. n.* To float (*Dryden*).

Waft. *s.* (from the verb.) 1. A floating body (*Thomson*). 2. Motion of a streamer.

WA'FTAGE. *s.* (from *waft.*) Carriage by water or air: not in use (*Shakspeare*).

WA'FTER. *s.* (from *waft.*) A passage boat (*Ainsworth*).

WA'FTURE. *s.* (from *waft.*) The act of waving: not in use (*Shakspeare*).

To WAG. *v. a.* (paȝian, Saxon; *waggon*, Dutch.) To move lightly; to shake slightly (*Swift*).

To Wag. *v. n.* 1. To be in quick or ludicrous motion (*Shaks.*). 2. To go; to pack off (*Shakspeare*). 3. To be moved (*Dryden*)

Wag. *s.* (pœgan, Saxon, to cheat.) Any one ludicrously mischievous; a merry droll (*Addison*).

WAGE. *s.* the plural *wages* is now only used. (*wagen*, German.) 1. Pay given for service (*Shaks.*). 2. Gage; pledge (*Ains.*).

To Wage. *v. a.* (*waegen*, German, to attempt any thing dangerous.) 1. To attempt; to venture (*Shaks.*). 2. To make; to carry on (*Dryden*). 3. (from *wage*, *wages.*) To set to hire: not in use (*Spenser*). 4. To take to hire; to hire for pay; to hold in pay: obsolete (*Davies*). 5. (In law.) When an action of debt is brought against any one, the defendant may *wage* his law; that is, swear, and certain persons with him, that he owes nothing to the plaintiff in manner as he hath declared. The offer to make the oath is called *wager* of law (*Blount*). See Wager.

WA'GER. *s.* (from *wage*, to venture.) 1. A bet; any thing pledged upon a chance or performance (*Bentley*). 2. Subject on which bets are laid (*Sidney*).

To Wa'ger. *v. a.* (from the noun.) To lay; to pledge as a bet (*Shaks.*).

Wager of law, a particular mode of proceeding, whereby, in an action of debt, brought upon a simple contract between the parties, without any deed or record, the defendant may discharge himself by swearing in court, in the presence of compurgators, that he owes the plaintiff nothing, in manner and form as he has declared, and his compurgators swear, that they believe what he says is true. And this waging his law is sometimes called making his law. It being at length considered, that this waging of law offered too great a temptation to perjury, by degrees new remedies were devised, and new forms of action introduced, wherein no defendant is at liberty to wage his law, as in assumpsit and trover. Also when a new statute inflicts a penalty, and gives an action of debt to recover it, it is usual to add, in which no wager of law shall be allowed.

Wagers. In general a wager may be considered as legal, if it be not an incitement to a breach of the peace, or to immorality, or if it do not affect the feelings or interest of a third person, or expose him to ridicule; or if it be not against sound policy.

WAGES. See Wage.

WA'GGERY. *s* (from *wag.*) Mischievous merriment; roguish trick; sarcastical gayety (*Locke*).

WA'GGISH. *a.* (from *wag.*) Knavishly merry; merrily mischievous; frolicsome (*L'Estrange*).

WA'GGISHNESS. *s.* (from *waggish.*) Merry mischief (*Bacon*).

To WA'GGLE. *v. n.* (*wagghelen*, Ger.) To waddle; to move from side to side (*Sidney*).

WA'GON. *s.* (pœgan, Saxon; *whaeghens*, Dutch; *vagn*, Islandic.) 1. A heavy carriage for burdens (*Knolles*). 2. A chariot: not in use (*Spenser*).

WA'GONER. *s.* (from *wagon.*) One who drives a wagon (*Dryden*).

WAGTAIL, in ornithology. See Motacilla.

WAHABEE, the name of a new sect in Arabia, which is said to threaten the extirpation of the faith of Mahomed. This sect commenced little more than 40 years ago; its author being Abdul Waheb, a private individual, who, after having devoted himself many years to science, proclaimed himself the reformer of the Mahomedan religion. In substance, however, he adhered to it, acknowledging Mahomed as the prophet of God; but forbidding to invoke him to intercede with God, and enjoining that prayer be made to God alone. He held that the koran was a book of divine inspiration; but denied its having existed externally in the essence of the Deity. He condemned the worshipping of saints, and a few other abuses. But he propagated his opinions principally, by adding to the inducements of religious zeal, the temptation of plunder; declaring that all the property of those who did not become proselytes to his opinions was unholy, and became confiscated for the use of his followers. In 1802 the Wahabees amounted to about 90,000: and since that period they are said to have increased. See Lord Valentia's Travels, vol. i. p. 385, &c. Waring's Travels in Persia, &c.

WAHLBOMIA, in botany, a genus of the class polyandria, order tetragynia. Calyx four-leaved; petals four; fruit oblong; styles permanent. One species only, a native of Java.

WAID. *a.* Crushed (*Shakspeare*).

WAIFS are goods which are stolen and waved by a felon in his flight from those who pursue him, which are forfeited; and though waif is generally spoken of goods stolen, yet if a man be pursued with hue and cry as a felon, and he flee and leave his own goods, these will be forfeited as goods stolen; but they are properly fugitive's goods, and not forfeited till it be found before the coroner, or otherwise of record, that he fled for the felony. See ESTRAYS.

WAIGATS, straits between Nova Zembla and Russia, through which the Dutch attempted to find a N.E. passage to China, and sailed as far as 75° E. lon. in lat. 72. 25 N.

To WAIL. *v. a.* (*gualare*, Ital.) To moan; to lament; to bewail (*Pope*).

To WAIL. *v. n.* To grieve audibly; to express sorrow (*Ezekiel*).

WAIL. *s.* Audible sorrow (*Thomson*).

WA'ILING. *s.* (from *wail*.) Lamentation; moan; audible sorrow (*Knolles*).

WAI'LFUL. *a.* (from *wail* and *full*.) Sorrowful; mournful (*Shakspeare*).

WAIN. *s.* (contracted from *wagon*.) A carriage (*Spenser*).

WAIN (Charles's), in astronomy. The vulgar name given to the figure formed by seven of the most remarkable stars in the constellation of Ursa major.

WAINFLEET, a town in Lincolnshire, with a market on Saturday. It is seated near the sea, in a fenny part of the country, and on the river Witham, 14 miles N.E. of Boston, and 130 N. by E. of London. Lon. 0. 20 E. Lat. 53. 10 N.

WA'INROPE. *s.* (*wain* and *rope*.) A large cord, with which the load is tied on the wagon; cartrope (*Shakspeare*).

WA'INSCOT. *s.* (*wageschot*, Dutch.) The inner wooden covering of a wall (*Arbuthnot*).

To WA'INSCOT. *v. a.* (*waegenschotten*, Dutch.) 1. To line walls with boards (*Bacon*). 2. To line buildings with different materials (*Grew*).

WAIR. *s.* A piece of timber two yards long, and a foot broad (*Bailey*).

WAIST. *s.* (*gwase*, Welsh.) 1. The smallest part of the body; the part below the ribs (*Milton*).

WAIST, in ship-building, that part of a ship which is contained between the quarter-deck and forecastle, being usually a hollow space, with an ascent of several steps to either of those places. When the waist of a merchant-ship is only one or two steps of descent from the quarter-deck and fore-castle, she is said to be galley-built; but when with six or seven steps, she is called frigate-built.

WA'ISTCOAT. *s.* (*waist* and *coat*.) An inner coat; a coat close to the body.

WAISTERS, in naval affairs, people stationed in the waist in working the ship. As their business requires only strength, without art or judgment, they are commonly selected from the strongest landsmen and ordinary seamen.

To WAIT. *v. a.* (*wachten*, Dutch.) 1. To expect; to stay for (*Shaks.*). 2. To attend; to accompany with submission or respect (*Dryden*). 3. To attend as a consequence of something (*Rowe*). 4. To watch as an enemy (*Job*).

To WAIT. *v. n.* 1. To expect; to stay in expectation (*Job*). 2. To pay servile or submissive attendance (*Denham*). 3. To attend (*Shaks.*). 4. To stay; not to depart from (*South*). 5. To stay by reason of some hinderance. 6. To look watchfully (*Bacon*). 7. To lie in ambush as an enemy (*Milton*). 8. To follow as a consequence (*Decay of Piety*).

WAIT. *s.* Ambush; insidious and secret attempts (*Numbers*).

WA'ITER. *s.* (from *wait*.) An attendant; one who attends for the accommodation of others (*Ben Jonson*).

WA'ITING GENTLEWOMAN. WA'ITING MAID. WA'ITING WOMAN. *s.* (from *wait*.) An upper servant who attends on a lady in her chamber (*Swift*).

WAIVE, in law, a woman that is put out of the protection of the law.

She is called *waive*, as being forsaken of the law; and not *outlaw*, as a man is; by reason women cannot be of the decenna, and are not sworn in leets to the king, nor to the law, as men are; who are therefore within the law; whereas women are not, and so cannot be outlawed, since they never were within it.

In this sense we meet with *waviaria mulieris*, as of the same import with *utlegatio viri*.

WAIVER, signifies the passing by of a thing, or a refusal to accept it: sometimes it is applied to an estate, or something conveyed to a man, and sometimes to plea, &c. and a waiver on disagreement as to goods and chattels, in case of a gift, will be effectual.

To WAKE. *v. n.* (*wakan*, Gothic; pacıan, Saxon; *waecken*, Dutch.) 1. To watch; not to sleep (*Locke*). 2. To be roused from sleep (*Milton*). 3. To cease to sleep (*Den.*). 4. To be quick; to be alive (*Dryden*). 5. To be put in action; to be excited (*Milton*).

To WAKE. *v. a.* (peccıan, Saxon; *wecken*, Dutch.) 1. To rouse from sleep (*Dryden*). 2. To excite; to be put in motion or action (*Prior*). 3. To bring to life again, as if from the sleep of death (*Milton*).

WAKE OF A SHIP, is the smooth water astern when she is under sail. This shews the way she has gone in the sea, whereby the mariners judge what way she makes. For if the wake be right a-stern, they conclude she makes her way forwards; but if the wake be to leeward a point or two, then they conclude she falls to the leeward of her course. When one ship, giving chase to another, is got as far into the wind as she, and sails directly after her, they say, she has got into her wake. A ship is said to stay to the weather of her wake, when, in her staying, she is so quick, that she does not fall to leeward upon a tack, but that when she is tacked, her wake is to the leeward; and it is a sign she feels her helm very well, and is quick of steerage.

WAKE is the eve-feast of the dedication of churches, which is kept with feasting and rural diversions. The learned Mr. Whitaker, in his History of Manchester, has given a particular account of the origin of wakes and fairs. He observes, that every church at its consecration received the name of some particular saint: this custom was practised among the Roman Britons, and continued among the Saxons; and in the council of Cealchythe, in 816, the name of the denominating saint was expressly required to be inscribed on the altars, and also on the walls of the church, or on a tablet within it. The feast of this saint became of course the festival of the church. Thus Christian festivals were substituted in the room of the idolatrous anniversaries of heathenism: accordingly, at the first introduction of Christianity among the Jutes of Kent, pope Gregory the Great advised what had been previously done among the Britons, viz. Christian festivals to be instituted in the room of the idolatrous, and the suffering day of the martyr, whose relics were reposited in the church, or the day on which the building was actually dedicated, to be the established feast of the parish. Both were appointed and observed; and they were clearly distinguished at first among the Saxons, as appears from the laws of the confessor, where the *dies dedicationis*, or *dedicatio*, is repeatedly discriminated from the *propria festivitas sancti*, or *celebratio sancti*. They remained equally distinct to the Reformation; the dedication day in 1536 being ordered for the future to be kept on the first Sunday in October, and the festival of the patron saint to be celebrated no longer. The latter was, by way of pre-eminence, denominated the church's holiday, or its peculiar festival; and while this remains in many parishes at present, the other is so utterly annihilated in all, that bishop Kennet (says Mr. Whitaker) knew nothing of its distinct existence, and has attributed to the day of dedication what is true only concerning the saint's day. Thus instituted at first, the day of the tutelar saint was observed, most probably by the Britons, and certainly by the Saxons, with great devotion. And the evening before every saint's day, in the Saxon-Jewish method of reckoning the hours, being an actual hour of the day, and therefore like that appropriated to the duties of public religion, as they reckoned Sunday from the first to commence at the sun-set of Saturday; the evening preceding the church's holiday would be observed with all the devotion of the festival. The people actually repaired to the church, and joined in the services of it; and they thus spent the evening of their greater festivities in the monasteries of the north, as early as the conclusion of the seventh century.

These services were naturally denominated from their late hours *wæccan* or *wakes*, and vigils or eves. That of the anniversary at Rippon, as early as the commencement of the eighth century, is expressly denominated the vigil. But that of the church's holiday was named *cyric wæccan*, or church-wake, the church-vigil, or church-eve. And it was this commencement of both with a wake, which has now caused the days to be generally preceded with vigils, and the church-holiday particularly to be denominated the *church wake*. So religiously was the eve and festival of the patron saint observed for many ages by the Saxons, even as late as the reign of Edgar, the former being spent in the church, and employed in prayer. And the wakes, and all the other holidays in the year, were put upon the same footing with the octaves of Christmas, Easter, and of Pentecost. When Gregory recommended the festival of the patron saint, he advised the people to erect booths of branches about the church on the day of the festival, and to feast and be merry in them with innocence. Accordingly, in every parish, on the returning anniversary of the saint, little pavilions were constructed of boughs, and the people indulged in them to hospitality and mirth. The feasting of the saint's day, however, was soon abused; and even in the body of the church, when the people were assembled for devotion, they began to mind diversions, and to introduce drinking. The growing intemperance gradually stained the service of the vigil, till the festivity of it was converted, as it now is, into the rigour of a fast. At length they too justly scandalized the Puritans of the last century, and numbers of the wakes were disused entirely, especially in the east and some western parts of England; but they are commonly observed in the north, and in the midland counties.

This custom of celebrity in the neighbourhood of the church, on the days of particular saints, was introduced into England from the continent, and must have been familiar equally to the Britons and Saxons; being observed among the churches of Asia in the sixth century, and by those of the west of Europe in the seventh. And equally in Asia and Europe on the continent, and in the islands, these celebrities were the causes of those commercial marts which we denominate fairs. The people resorted in crowds to the festival, and a considerable provision would be wanted for their entertainment. The prospect of interest invited the little traders of the country to come and offer their wares; and thus, among the many pavilions for hospitality in the neighbourhood of the church, various booths were erected for the sale of different commodities. In large towns, surrounded with populous districts, the resort of the people to the wakes would be great, and the attendance of traders numerous; and this resort and attendance constitute a fair.—Basil expressly mentions the numerous appearance of traders at these festivals in Asia, and Gregory notes the same custom to be common in Europe. And as the festival was observed on a feria or holiday, it naturally assumed to itself, and as naturally communicated to the mart, the appellation of *feria* or fair. Indeed several of our most ancient fairs appear to have been usually held, and have been continued to our time, on the original church-holidays of the places: besides, it is observable that fairs were generally kept in churchyards, and even in the churches, and also on Sundays, till the indecency and scandal were so great as to need reformation.

Wake robin. See **Arum.**

Wake (William), was born at Blandford, Dorsetshire, 1657. He was in 1672 admitted at Christ-church, and became preacher to the Gray's-inn society. He was next deputy clerk to the closet, and chaplain to William and Mary, and soon after canon of Christ-church, rector of St. James's, Westminster, dean of Exeter, bishop of Lincoln 1705, and translated to Canterbury 1716. He was engaged in controversy with Atterbury with respect to the rights of convocation, but though several of the clergy entered the lists on both sides, the State of the Church and Clergy of England, &c. fol. by Dr. Wake, was the most luminous and satisfactory performance on the subject. In other writings he ably vindicated the church against the papists, and while he wished to form an union between the churches of England and France, he was indefatigable in supporting the rights of the protestants. He died at Lambeth, 1737. Besides his controversial works, he published a translation of the Epistles of the apostolical Fathers, 8vo.; Exposition of the Church Catechism; Sermons and Charges.

WAKEFIELD, a town in the W. riding of Yorkshire, with a market on Friday. Here are two churches, and an ancient stone bridge over the Calder, on which Edward IV. erected a chapel, in remembrance of those who lost their lives in the battle near this place, in 1460. In 1801 the inhabitants of Wakefield were 8131. It has a trade in white cloths and tammies, and is 28 miles S.W. of York, and 184 N.N.W. of London. Lon. 1. 28 W. Lat. 53. 41 N.

Wakefield (Gilbert), a very distinguished classical scholar, was born at Nottingham; and educated, first at Kingston upon Thames, afterwards at Jesus college, Cambridge. When in deacon's orders he obtained Stockport curacy, Cheshire, and next removed to Liverpool. He quitted the church in 1779 to be tutor in the dissenting academy at Warrington, and on its dissolution he removed to Hackney college.

The French Revolution, which engaged the attention of so many men who possessed warm heads, or warm hearts, was too interesting not to draw the attention of Mr. Wakefield, who had both. Thus he was drawn from the calm pursuits of literature, in which he was calculated to shine, into the boisterous regions of political discussion, where he lost his comfort, sunk his character, and gained nothing. He was at length prosecuted by the attorney-general, on account of some passages contained in a letter addressed to the bishop of Landaff; and was, in consequence, confined in Dorchester gaol for two years. His imprisonment expired in May, 1801; and he returned to London full of hopes, and plans of future conduct; but these were never realized, as a fever terminated his life the following September, in his forty-fifth year. His principal publications are a collection of Latin poems, with notes on Homer, 1776—inquiry into the opinions of the christian writers of the three first centuries concerning the person of J. C. 4 vols. 8vo.—sylva critica—a pamphlet against public worship, answered chiefly by dissenters—translation of the New Testament, 2 vols. 8vo.—tragœdiarum Græcarum delectus, 2 vols. 12mo.—Lucretius edited, 3 vols. 4to.—Horace edited, &c. He also published memoirs of his life in one 8vo. volume, to which another volume was added by some friends after his death. His controversial pieces are marked with great impetuosity, and undue warmth; but in private life he was amiable and unassuming. We disapprove very highly of both his political and his theological principles; for he was nearly a republican and a decided socinian: but no difference of opinion can induce us to withhold our testimony to his moral worth. Of the extent of his classical attainments there can be no doubt; he was deservedly reckoned one of the best Greek scholars in England.

WA'KEFUL. *a.* *(wake* and *full.)* Not sleeping; vigilant *(Crashaw).*

WA'KEFULNESS. *s.* (from *wakeful.)* 1. Want of sleep *(Bacon).* 2. Forbearance of sleep. See **Vigilance.**

To WA'KEN. *v. n.* (from *wake.)* To wake; to cease from sleep; to be roused from sleep *(Dryden).*

To **Wa'ken.** *v. a.* 1. To rouse from sleep *(Spenser).* 2. To excite to action *(Roscom.).* 3. To produce; to excite (*Milton*).

WALACHIA, the ancient Dacia, a province of Turkey in Europe, 225 miles long and 125 broad; bounded on the N. by Moldavia and Transylvania, on the E. and S. by the river Danube, and on the W. by Transylvania. It abounds in good horses and cattle, has mines of several kinds, and produces wine, oil, and all manner of European fruits. It was ceded to the Turks by the treaty of Belgrade in 1739; and the inhabitants are chiefly of the Greek church. Tergovista, or Tervis, is the capital.

WALCHEREN, an island of the United Provinces, the principal one of Zealand. It is separated from the islands of N. and S. Beveland, by a narrow channel; and from Dutch Flanders by the mouth of the Scheld; being bounded on the other sides by the German ocean. It is nine miles long and eight broad, and being low is subject to inundations, but has good arable and pasture lands. The capital of this island, and of the whole province, is Middleburg.

WALCOUR, a town of the Austrian Netherlands, in the county of Namur, between the Meuse and Sambre. In 1615 it was entirely destroyed by fire. The French attempted to take it in 1689, but were defeated, and compelled to retire with great loss, by the Prince of Waldeck. It is seated on the Heura, 12 miles S. of Charleroy, and 27 S.W. of Namur. Lon. 4. 30 E. Lat. 50. 10 N.

WALDECK, a principality of Germany,

in the circle of Upper Rhine, 30 miles long and 20 broad; bounded on the E. and S. by Hesse-Cassel, and on the W. and N. by Westphalia. It is a mountainous country, covered with woods; and has mines of iron, copper, quicksilver, and alum.

WALDECK, a town of Germany, capital of a principality of the same name, with a castle, seated on the Steinbach, 25 miles W.S.W. of Cassel. Lon. 9. 4 E. Lat. 51. 10 N.

WALDEN, a town of Essex, commonly called Saffron Walden, with a market on Saturdays, and two fairs, on Midlent Saturday for horses, and November 1st for cows. It is remarkable for the plenty of saffron that grows about it. This town was incorporated by Edward VI. and is governed by a mayor and 24 aldermen. It is 27 miles N.W. by N. of Chelmsford, and 43 N.E. of London. Lon. 0. 20. E. Lat. 52. 4 N.

WALDENBURG, a town of Upper Saxony, situate on the Muldau. The old town of Waldenburg, which is directly opposite it on the other side of the Muldau, is famous for its brown and white earthen ware. It is nine miles N. of Zwickau, and 44 W. of Dresden. Lon. 12. 30 E. Lat. 50. 49 N.

WALDENSES. See VAUDOIS.

WALDSTEINIA, in botany, a genus of the class icosandria, order digynia. Calyx ten-cleft, every other segment less; petals five; seeds two, obovate. One species, a native of Hungary, with five-lobed hairy root-leaves, and yellow flowers.

WALE. *s.* (pel, Sax. a web.) A rising part in the surface of cloth.

WALE, or WALES, in a ship, those outermost timbers in a ship's side, on which the sailors set their feet in climbing up. They are reckoned from the water, and are called her first, second, and third wale, or bend.

WALE KNOT, a round knot or knob made with three strands of a rope, so that it cannot slip, by which the tacks, top-sail sheets, and stoppers are made fast, as also some other ropes.

WALE REARED, on board a ship, a name the seamen give to a ship, which, after she comes to her bearing, is built straight up. This way of building, though it does not look well, nor is, as the seamen term it, ship-shapen; yet it has this advantage, that a ship is thereby more roomy within board, and becomes thereby a wholesome ship at sea, especially if her bearing be well laid out.

WALES, a principality in the W. of England, 120 miles long and 80 broad; bounded on the N. by the Irish sea, W. by that sea and St. George channel, S. by the Bristol channel, and E. by the counties of Chester, Salop, Hereford, and Monmouth. It contains 5,200,000 acres, and the number of inhabitants in 1801 was 541,546. See POPULATION. It is divided into North and South Wales, each containing six counties; namely, Anglesey, Carnarvon, Denbigh, Flint, Merioneth, and Montgomery, in N. Wales; Brecknock, Cardigan, Carmarthen, Glamorgan, Pembroke, and Radnor, in S. Wales. It is th country to which the ancient Britons fled when Great Britain was invaded by the Saxons. They are now called Welsh, and continue to preserve their own language. They were long governed by independent kings, till in the reign of Edward I, their last prince, Llewellin, being vanquished and slain in the year 1283, the country was united to England. The natives submitted to the English dominion with extreme reluctance; and Edward, as a conciliatory means, promised to give them for their prince a Welshman by birth, and one who could speak no other language. This notice being received with joy, he invested in the principality his second son, Edward, then an infant, who had been born at Carnarvon. The death of his eldest son, Alphonso, happening soon after, young Edward became heir also of the English monarchy, and united both nations under one government; but some ages elapsed, before the animosity which had long subsisted between them was totally extinguished. From the time of Edward II, the eldest son of the king of England has always been created prince of Wales. The country is mountainous, but not barren, producing all the necessaries of life; the cattle and sheep are numerous, but small, and it is particularly famous for goats. It is watered by many rivers, the principal of which, and other particulars, are noted in the different counties.

WALES (New North and South), a large country of New Britain, lying W. and S.W. of Hudson bay, and little known. See BRITAIN (New).

WALES (New South), is also a name given to the E. coast of New Holland. See NEW HOLLAND.

WALES (William), a respectable mathematician, who accompanied Cook in his first voyage round the world, as astronomer, and was recommended to the place of mathematical master at Christ's hospital. He was author of account of astronomical observations in the southern hemisphere, 4to.—remarks on Foster's account of Cook's voyage—enquiry into the population of England and Wales—Robertson's elements of navigation improved—an essay on finding the longitude by time-keepers, &c. and died in 1799.

To WALK. *v. a.* (*walen*, German; pealcan, Saxon, to roll.) 1. To move by leisurely steps, so that one foot is set down before the other is taken up (*Clarendon*). 2. It is used in the ceremonious language of invitation, for *come* or *go* (*Shaks.*). 3. To move for exercise or amusement (*Shaks.*). 4. To move the slowest pace: not to trot, gallop, or amble. Applied to a horse. 5. To appear as a spectre (*Davies*). 6. To act on any occasion (*Ben Jonson*). 7. To be in motion (*Spenser*). 8. To act in sleep (*Shaks.*). 9. To range; to be stirring (*Shaks.*). 10. To move off; to depart (*Spen.*). 11. To act in any particular manner: as, *to* walk *uprightly* (*Micah*). 12. To travel (*Deuteronomy*).

To WALK. *v. a.* 1. To pass through (*Shaks.*). 2. To lead out for the sake of air or exercise.

WALK. *s.* (from the verb.) 1. Act of walking for air or exercise (*Pope*). 2. Gait; step; manner of moving (*Dryden*). 3. A length of space, or circuit, through which one walks (*Milton*). 4. An avenue set with trees (*Milton*). 5. Way; road; range; place of wandering (*Sandys*). 6. Region; space (*Rey.*). 7. (*turbo*, Latin.) A fish (*Ains.*). 8. *Walk* is the slowest or least raised pace or going of a horse (*Farrier's Dict.*).

WA'LKER. *s.* One that walks (*Swift*).

WALKERA, in botany, a genus of the class pentandria, order monogynia. Calyx five-parted, inferior; corol five-petalled; drupes five-seeded; not kidney-shaped. One species, an East-Indian shrub, with alternate, oblong, serrate leaves; terminal corymbs; small yellowish flowers, without smell.

WA'LKINGSTAFF. *s.* A stick which a man holds to support him in walking (*Glan.*).

WALL. *s.* (*wall*, Welsh; *vallum*, Latin; pall, Saxon; *walle*, Dutch.) 1. A series of brick or stone carried upward, and cemented with mortar; the side of a building (*Wotton*). 2. Fortification; works built for defence: commonly in the plural (*Shaks.*). 3. *To take the* WALL. To take the upper place; not to give place (*Prior*).

To WALL. *v. a.* (from the noun.) 1. To enclose with walls (*Dryden*). 2. To defend by walls (*Bacon*).

WALL-EYES, in a horse, are those in which the iris is of a very light grey colour. These are not deemed handsome; but Gibson says, that horses which have wall eyes are generally good.

WALLACE (Sir William), a famous champion of Scotland in the reign of Baliol, when that kingdom was over-run by the English; he had been obliged to abscond for having slain an English nobleman, but returning with a number of zealous followers, was proclaimed regent, or viceroy for Baliol, and made a prodigious slaughter and numerous conquests among the English; he made an inroad into England, and returned laden with spoils, insomuch that he excited the envy of the nobility, who gave out that he had designs upon the Scottish crown. King Edward, in conjunction with many of those Scots who were in enmity to Wallace, gave him battle and defeated him; whereupon he dismissed the remnant of his army, laid aside the title of general, but still infested the English with small parties. He was, however, at length betrayed into the hands of the English, and inhumanly executed by Edward's order, and his limbs hung up in the most conspicuous places of London and Scotland.

WALLAJAPETTA, a town of Hindustan, in the Carnatic, which is regularly built, and populous. Almost the whole of the trade between the country above the Gauts and the seacoast centres here. It is seated on the N. bank of the Paliar, nearly opposite Arcot, 63 miles W. by S. of Madras.

WALLENIA, in botany, a genus of the class tetrandria, order monogynia. Calyx four-cleft, inferior; corol tubular, four-cleft; berry one-seeded. One species, a West-Indian tree, with alternate, thick, polished leaves, white flowers, and a reddish calyx.

WALLENSTADT, a town of Swisserland, incorporated into the bailiwic of Sargans, but enjoying many distinct privileges. It is a great thoroughfare for merchandise passing from Germany, through the country of the Grisons, to Italy. It stands at the E. end of a lake of the same name, nine miles W. of Sargans, and 15 N.W. of Coire.

WALLENSTADT, a lake of Swisserland, 10 miles long and two broad, bounded by high mountains, except to the E. and W. On the side of the canton of Glarus, the mountains are chiefly cultivated, and studded with small villages; on the other side, for the most part, the rocks are craggy and perpendicular. Through this lake flows the Mat, which soon after joins the Linth, and forms the river Limmat.

WALLER (Edmund), an English poet, born 1625, at Coleshill near Amersham. He was Educated at Eton, and King's college, Cambridge, and was chosen, when scarce seventeen, member for Amersham, in the last parliament of James I. He became early known to the public by carrying off a rich heiress against a rival, whose pretensions were espoused by the court; but his happiness was of such short duration that he was a widower at 25. Though noticed and flattered on account of his wit and vivacity, he did not neglect the muses, but imbibed a deep taste for the beauties of ancient writers. In his parliamentary conduct he opposed the measures of the court, and in the impeachment of judge Crawley, he spoke with such eloquence that 20,000 copies of his speech were sold in one day. He was in 1642 one of the commissioners from the parliament to the king at Oxford, but the following year he was accused of a conspiracy to reduce London, and the Tower. In this he was assisted by some members of parliament and others; but though they were condemned to death, only two were hanged, and Waller purchased his life, after one year's imprisonment, by a heavy fine of 10,000*l.* After this he retired to France, and lived chiefly at Rouen, and on his return he paid his court to the men in power, and became a favourite with Cromwell. So great was the versatility of his talents, that after being in confidence with the usurper, he became the favourite of the second Charles. He continued also in the good graces of James II.; but died of a dropsy at Beaconsfield, 1st Oct. 1687. In his character, Waller was agreeable, his discourse was admired for its vivacity, and in the House of Commons his speeches were heard with unusual attention, not only from the elegance of his delivery, but the force of his wit. Though courted as a man of the world, he was in other respects, says Clarendon, of an abject temper, without courage to support him in any virtuous undertaking, and of the most insinuating flattery. The virulence which he showed in joining the persecution of Clarendon is not free from censure, and though he lost by his means the office of provost of Eton, he ought to have shrunk from the appearance of an accuser against him. As a poet, Waller is entitled to the highest praise. He may be called the parent of English verse, and the first who shewed us that our language had beauty and numbers. The English tongue came into his hands like a rough diamond, he polished it first, and to that degree, that all succeeding artists have admired the workmanship, while few have attempted to mend it.

WA'LLET. *s.* (peallian, to travel, Saxon.) 1. A bag, in which the necessaries of a traveller are put; a knapsack (*Addison*). 2. Any thing protuberant and swagging (*Shaks.*).

WA'LLFLOWER. *s.* A species of stock-gilliflower.

WA'LLFRUIT. *s.* Fruit which, to be ripened, must be planted against a wall (*Mortimer*).

WALLINGFORD, a borough in Berkshire, with a market on Tuesday and Friday, and a great trade in corn and malt. It was once surrounded by a wall, and had a castle, now demolished; and consists of four parishes, but has only one church now in use. It is seated on the Thames, over which is a stone bridge, 14 miles N.W. of Reading, and 46 W. of London.

WALLIS (Dr. John), a celebrated mathematician, was born at Ashford, in Kent, in 1616, and educated at Cambridge. In 1640 he received holy orders, and was chosen fellow of Queens college. He kept his fellowship till it was vacated by his marriage, but quitted his college to be chaplain to sir Richard Darley: after a year spent in this situation, he spent two more as chaplain to lady Vere. While he lived in this family he cultivated the art of deciphering, which proved very useful to him on several occasions: he met with rewards and preferment from the government at home for deciphering letters for them; and it is said, that the elector of Brandenburg sent him a gold chain and medal, for explaining for him some letters written in ciphers.

Academical studies being much interrupted by the civil wars in both the universities, many learned men from them resorted to London, and formed assemblies there. Wallis belonged to one of these, the members of which met once a week, to discourse on philosophical matters; and this society was the rise and beginning of that which was afterwards incorporated by the name of the Royal Society, of which Wallis was one of the most early members.

The Savilian professor of geometry at Oxford being ejected by the parliamentary visitors, in 1649, Wallis was appointed to succeed him, and he opened his lectures there the same year. In 1653, he published, in Latin, a Grammar of the English Tongue, for the use of foreigners; to which was added a tract De Loquela seu Sonorum formatione, &c. in which he considers philosophically the formation of all sounds used in articulate speech, and shows how the organs being put into certain positions, and the breath pushed out from the lungs, the person will thus be made to speak, whether he hear himself or not. Pursuing these reflections, he was led to think it possible, that a deaf person might be taught to speak, by being directed so to apply the organs of speech, as the sound of each letter required, which children learn by imitation and frequent attempts rather than by art.

In 1657, he collected and published his mathematical works, in two parts, entitled, Mathesis Universalis, in quarto; and, in 1658, Commercium Epistolicum de Quaestionibus quibusdam Mathematicis nuper habitum, in quarto; which was a collection of letters written by many learned men, as lord Brounker, sir Kenelm Digby, Fermat, Schooten, Wallis, and others.

Upon the Restoration he met with great respect; the king thinking favourably of him on account of some services he had done both to himself and his father, Charles I. He was, therefore, confirmed in his places, also admitted one of the king's chaplains in ordinary, and appointed one of the divines empowered to revise the Book of Common Prayer. He was a very useful member of the Royal Society, and kept up a literary correspondence with many learned men.

In 1670, he published his Mechanica; sive de Motu, quarto. In 1676, he gave an edition of Archimedis Syracusani Arenarius et Dimensio Circuli; and, in 1682, he published from the manuscripts, Claudii Ptolemæi Opus Harmonicum, in Greek, with a Latin version and notes; to which he afterwards added, Appendix de veterum Harmonica ad hodiernam comparata, &c.

In 1685, he published his History and Practice of Algebra, in folio; a work that is full of learned and useful matter. Besides the works above mentioned, he published many others, particularly his Arithmetic of Infinites, a book of genius and good invention, and perhaps almost his only work that is so, for he was much more distinguished for his industry and judgment than for his genius. Also a multitude of papers in the Philosophical Transactions, in almost every volume, from the first to the twenty-fifth volume.

In 1697, the curators of the university press at Oxford thought it for the honour of the university to collect the doctor's mathematical works, which had been printed separately, some in Latin, some in English, and published them all together in the Latin tongue, in three volumes, folio, 1699.

Dr. Wallis died at Oxford the 28th of

October, 1703, in the eighty-eighth year of his age, leaving behind him one son and two daughters. We are told, that he was of a vigorous constitution, and of a mind which was strong, calm, serene, and not easily ruffled or discomposed. He speaks of himself, in his letter to Mr. Smith, in a strain which shews him to have been a very cautious and prudent man, whatever his secret opinions and attachments might be. He concludes: "It hath been my endeavour all along, to act by moderate principles, being willing, whatever side was uppermost, to promote any good design, for the true interest of religion, of learning, and of the public good."

WALLOONS, a name formerly given to the inhabitants of a considerable part of the French and Austrian Netherlands, as Artois, Hainault, Namur, Luxemburg, and a part of Flanders and Brabant.

To WA'LLOP. *v. n.* (pealan, to boil, Saxon.) To boil.

To WA'LLOW. *v. n.* (*walugan*, Gothic; palcian, Saxon.) 1. To move heavily and clumsily (*Milton*). 2. To roll himself in mire, or any thing filthy (*Knolles*). 3. To live in any state of filth or gross vice (*South*).

WA'LLOW. *s.* (from the verb.) A kind of rolling walk (*Dryden*).

WALNEY, an island of England, on the coast of Lancashire. It is nine miles long and one broad, and serves as a bulwark to the hundred of Furness, against the waves of the Irish sea.

WALNUT TREE. See JUGLANS.

WALPO, a town of Sclavonia, capital of a county of the same name, with a castle. It is seated on the river Walpo, 20 miles W. of Essek, and 110 S. of Buda. Lon. 19. 22 E. Lat. 45. 35 N.

WALPOLE, a town of New Hampshire, in Cheshire county, seated on the Connecticut, 14 miles N. by W. of Keene, and 108 W. of Portsmouth.

WALPOLE (Sir Robert), afterwards earl of Orford, was born at Houghton in Norfolk, in 1674. In 1700 he was chosen member of parliament for King's Lynn, which he represented in several succeeding parliaments. In 1705 he was made secretary at war, and in 1709 treasurer of the navy. Upon the change of ministry, he was removed from all his places; and in 1711 the commons voted him guilty of notorious corruptions in his office of secretary at war, and resolved that he should be committed to the Tower, and expelled the house. The whigs, however, espoused his cause, and by their influence had him rechosen for the borough of Lynn. The house declared his election void; but his constituents and friends persisted in their choice, and he sat in the next parliament. He was appointed paymaster-general of the forces, and a privy counsellor, on the accession of George I. but in two years after he resigned, and opposed the ministry; and in two years was again made paymaster. Soon after this he rose to a power no minister had ever attained, holding the united offices of chancellor of the exchequer and first lord of the treasury. From his conduct in these situations, he has been called the father of corruption; and is said to have boasted that he knew every man's price. He was either mistaken in his assertion, or he had not the means of purchasing, as it appeared soon after; for in 1742 the opposition prevailed over him, and he was compelled to resign all his places. To screen him from all further resentment of the commons, he was created earl of Orford, and gratified with a pension of 4000*l.* a-year. He lived, however, but little more than two years to enjoy these honours, for he died in 1745. He wrote several political pamphlets in the early part of his life. In the latter part of it he had too many venial pens at his command to need the use of his own.

WALPOLE (Horace), third and youngest son of the preceding, by his lady, the daughter of John Shorter, esq. after whose death he married Mary Skerrot, who bore him an only daughter, lady Mary Walpole (afterwards lady Mary Churchill). Mr. Walpole was sent to Eton school at the age of fourteen, where he formed an intimate acquaintance with Gray, the poet. They both went to Cambridge together in the year 1734.—Mr. Walpole was of King's college: on the founder of which, viz. Henry VI. he wrote those verses which, as a first production, might well be deemed no unfavourable presage of future talent.—They are dated February, 1738. In the same year, having just attained to majority, he was appointed inspector-general of exports and imports, a place which he exchanged for the sinecure office of usher of the exchequer, worth near three thousand pounds a-year; and as his father was still in the meridian of power, other favours were successively conferred on him, so as to make his annual income above four thousand pounds. The next year he set out on a tour to France and Italy, accompanied by Gray, his hitherto inseparable friend. They, however, fell out at Reggio, on their return home in 1741. At the end of the same year Mr. Walpole took a seat in the House of Commons, for the borough of Callington, in Cornwall; and in March 1742 made an animated speech in defence of his father's conduct, a committee of secrecy being moved for in order to enquire into it.—He appears to have entertained no flattering opinion of his own abilities as an orator, as although he was chosen for Castle Rising in 1747, and for King's Lynn in 1754, and again in 1761, he was never known in all that time to do more than give his silent vote. The close of this last parliament put an end to his political career; and on this occasion the letter he wrote to the mayor of Lynn contained a passage which will not be forgotten while any one lives who knew his father as well as himself. In offering the reason which made him decline to be a candidate again, he says, "an expensive contest may be expected from ministerial corruption;" and adds, "which must end in the ruin of the constitution and the country." But though his political occupation ended here, his political opinions were asked and given freely throughout his life. These were most frequently exercised upon the French revolution, which he condemned throughout. He professed at all times a hatred to democracy; and the decree for the abolition of nobility taking place at the moment of his accession to a peerage, could not fail to increase his enmity to it. A few years before he retired from parliament, he fitted up a tenement at Strawberry-hill, near Twickenham, in a gothic style, where he opened a printing-press; the first works from which were the two majestic odes of the British Pindar, with whom he had renewed his acquaintance and friendship. His Catalogue of Royal and Noble Authors was among the other productions of his private press, a catalogue of which has been printed in the Appendix to the Walpoliana. Mr. Walpole's poetry (as may be observed in his fugitive pieces) has little to recommend it, but elegant turns of expression. His Castle of Otranto has been considered as a proof that he possessed one of the qualifications of both painter and poet. It is a romance which paints the fancy of Salvator Rosa. In treating on antiquarian subjects, Mr. Walpole was greatly deficient as to accuracy, the proofs of which are to be found in his Historic Doubts concerning Richard III. Mr. Walpole is to be admired principally for his ease and eloquence of language, with now and then striking and sublime expressions. He appears to most advantage in the epistolary dress, as his Letters evince. The Mysterious Mother, and the Anecdotes of Painting in England, are esteemed as his chief works; though the latter is not exempt from chronological errors. In 1770 he produced his Essay on Modern Gardening; and this is the last employment his pen intended for the press. Mr. Walpole has been blamed by many for the unhappy fate of Chatterton, the poet. His friends, however, fully defend his conduct; while those of both agree, that an artist of any kind, following Mr. Walpole as a patron, must certainly have lost his way. Upon the death of his nephew, the earl of Orford, in 1791, Mr. Walpole, then in the 74th year of his age, succeeded to the title, which at his death on the 2d of March, 1797, became extinct; the estate of Houghton thereby devolving to the present earl Cholmondeley (*Watkins*).

WALRUS, in zoology. See TRICHECUS.

WALSALL, a corporate town in Staffordshire, with a market on Tuesday and Friday. It has several manufactures in iron, such as nails, bridlebits, stirrups, spurs, buckles, &c. and is governed by a mayor. It is seated on the side of a hill, 15 miles S. of Stafford, and 116 N.W. of London. Lon. 1. 56 W. Lat. 52. 46 N.

WALSHAM (North), a town in Norfolk, with a market on Tuesday, 10 miles E of Norwich, and 123 N.N.E. of London. Lon. 1. 31 E. Lat. 52. 40 N.

WALSINGHAM, a town in Norfolk, with a market on Friday. It is famous for the ruins of a monastery, which had a shrine of the Virgin, almost as much frequented as that of Thomas Becket at Canterbury. Among these ruins are two uncovered wells, one of which is called the Virgin Mary's or the Holy Well. Walsingham is 25 miles N.W. of Norwich, and 116 N.N.E. of London. Lon. 0. 53 E. Lat. 52. 56. N.

WALTHAM, or BISHOP'S WALTHAM, a town in Hampshire, with a market on Friday. It obtained this last name from a palace of the bishop of Winchester, once situate here; and here are the ruins of an abbey, called by the country people, the Bishop's Abbey. The statute 9 George I, commonly called the Waltham Black Act, was occasioned by a party of the inhabitants of this town, who had retired to a recluse dell in the New Forest, whence, being in disguise, or with their faces blacked, they issued in the night, committing great depredations, killing deer, sheep, &c. for their subsistence. Hence they were called the Waltham Blacks. The place of their retreat was accessible only by a subterranean passage: they dressed like foresters, and the crossbow was their weapon. They were dispersed, at last, by the activity of the neighbouring gentlemen. Waltham is eight miles S. of Winchester, and 65 W. by S. of London. Lon. 1. 20 W. Lat. 50. 57 N.

WALTHAM ABBEY, or WALTHAM HOLY CROSS, a town in Essex, with a market on Tuesday. It received its second appellation from a holy cross, pretended to have been miraculously conveyed here; and it obtained its first name from a magnificent abbey, founded in honour of this cross, by king Harold, some fragments of which remain. Harold, and his two brothers, after the battle of Hastings, were interred here. A plain stone is said to have been laid over him, with this incription, Haroldus Infelix; and a stone coffin, supposed to have been his, was discovered in the reign of Elizabeth. At Waltham Abbey are some gunpowder mills, and some manufactures of printed linens and pins. It is seated on the river Lea, which here forms several islands, 12 miles N. by E. of London. Lon. 0. 3 E. Lat. 51. 42 N.

WALTHAM CROSS, or WEST WALTHAM, a village in Hertfordshire, which takes its first appellation from a cross erected here by Edward I, in honour of his queen Eleanor; and has its second name from its situation W. of Waltham Abbey. It is seated near the river Lea, 12 miles N. by E. of London.

WALTHAM ON THE WOULD, a town in Leicestershire, with a market on Thursday, almost disused. It is 19 miles N.E. of Leicester, and 113 N. by W. of London. Lon. 0. 46 W. Lat. 52. 51 N.

WALTHAMSTOW, a considerable village in Essex, adorned with handsome villas, and seated near the river Lea, five miles NE. of London.

WALTHERIA, in botany, a genus of the class monadelphia, order pentandria. Calyx double, the outer lateral, three-leaved; deciduous; petals five; style one; capsule one-celled, two-valved, one-seeded. Six species, natives of the East Indies or Peru.

The following shrubs of this family are cultivated.

1. W. Americana. American waltheria. Two feet high, bearing small yellow flowers in spikes.

2. W. Indica. Indian waltheria. Eight or ten feet high; flowers yellow, clustered, just peeping out of their soft yellow calyxes.

3. W. angustifolia. Narrow-leaved waltheria. Six or seven feet high, with small yellow flowers in round clusters, standing upon short peduncles. A native of India.

WALTON (Brian), the learned editor of the Polyglott Bible, was born at Cleaveland, Yorkshire, 1600. He studied at Magdalen college, and afterwards at Peterhouse, Cambridge, and became rector of St. Martin's Orgar, London, and of Sandon, Essex. He was next chaplain to the king, and prebendary of St. Paul's. His activity in defending the rights of the church rendered him obnoxious to the presbyterians, so that he was accused before parliament as a great delinquent. He escaped to Oxford, where he was incorporated in 1645, and where he formed the noble scheme for his Polyglott Bible. This laborious publication was completed in the midst of persecution and of civil war, and made its appearance in 1657, in six vols. folio, exhibiting the text in the Hebrew, Syriac, Chaldee, Samaritan, Arabic, Æthiopic, Persic, Greek, and Latin languages. His coadjutors in collating various copies, were Edmund Castell, Samuel Clarke, Thomas Hyde, Edward Pococke, Whelock, Thorndike, and others. For his services Walton was made chaplain to the king, and bishop of Chester. His reception in his diocese, in the midst of the acclamations of thousands of people, was most flattering to his virtues; but alas! he died on his return to London, at his house, Aldersgate-street, 1661. He published besides, Introductio ad Lectionem Linguarum Oriental. 8vo.—An able Defence of his Bible, &c.

Walton (Izaak), was born at Stafford, 1593. He for some time kept a shop in the Royal Exchange, and in Fleet-street, and retired with a comfortable competency. He was attached to angling, and published a most valuable treatise on his favourite amusement, called The complete Angler; or, The contemplative Man's Recreation, 1653, in 12mo. with cuts, of which a fifth edition appeared in 1676. His time was afterwards employed in compiling accounts of the lives of several of his friends, and these exhibit a most pleasing picture of the abilities of the author, and abound with interesting anecdotes of men eminent in rank, in talents, and in learning. The characters mentioned are Dr. John Donne, sir Henry Wotton, Hooker, author of ecclesiastical polity, George Herbert, and bishop Sanderson. Walton lived to a good old age, respected and beloved, and died 1683, aged above 90. The best edition of his Angler is by sir John Hawkins, and of his Lives is that by Zouch, in 4to.

To WA'MBLE. *v. n.* (*wemmelen*, Dutch.) To roll with nausea and sickness (*L'Estrange*).

WAMPUM, the money used by the North American Indians. It is made of a shell of a particular species of testaceous worm called Venus; and being strung together so as to form a zone or belt is much used in all their treaties as a symbol of friendship.

WAN. *a.* (pann, Sax.) Pale, as with sickness; languid of look (*Suckling*).

Wan, for *won*, the old preterit of *win* (*Spenser*).

WAND. *s.* (*vaand*, Danish.) 1. A small stick or twig; a long rod (*Bacon*). 2. Any staff of authority, or use (*Sidney*). 3. A charming rod (*Milton*).

To WA'NDER. *v. n.* (panꝺꞃian, Saxon; *wandelen*, Dutch.) 1. To rove; to ramble here and there; to go without any certain course (*Shakspeare*). 2. To deviate; to go astray (*Psalms*).

To Wa'nder. *v. a.* To travel over, without a certain course (*Milton*).

WA'NDERER. *s.* (from *wander.*) Rover; rambler (*Ben Jonson*).

WA'NDERING. *s.* (from *wander.*) 1. Uncertain peregrination (*Addison*). 2. Aberration; mistaken way (*Decay of Piety*). 3. Uncertainty; want of being fixed (*Law*).

WANDERU, in zoology. See Simia.

WANDSWORTH, a large village in Surry, seated on the Wandle, near its confluence with the Thames, five miles W.S.W. of London. At the close of the last century, many French refugees settled here, and established a French church, which is now a meeting for the methodists. The dying of cloth has been practised here for more than a century; there are also manufactures for bolting cloth, the printing of calicoes and kerseymeres, and the whitening and pressing of stuffs; with oil, iron, and whitelead mills, vinegar works, and distilleries. Here is a quaker's meeting-house, and two schools for children of that persuasion. The tower of the church is ancient, but the church itself is a modern structure. In Garret-lane, in this parish, is a mock election, after every general election of parliament, of a mayor of Garret; to which Mr. Foote's dramatic piece of that name gave no small celebrity.

To WANE. *v. n.* (panian, to grow less, Saxon.) 1. To grow less; to decrease (*Hakewill*). 2. To decline; to sink (*Rowe*).

Wane. *s.* (from the verb.) 1. Decrease of the moon (*Bacon*). 2. Decline; diminution; declension (*South*).

WANGEN, an imperial town of Suabia. The inhabitants are papists, and carry on a great trade in paper and hardware. It is seated on the Overarg, 17 miles N.E. of Lindau, and 30 E. of Constance. Lon. 9. 56 E. Lat. 47. 38 N.

Wangen, a town of Swisserland, capital of the bailiwic of Wangen, in Upper Argau. It is seated on the Aar, 10 miles E. of Soleure, and 23 N.N.E. of Bern. Lon. 7. 30 E. Lat. 47. 16 N.

WANGEN, a town of France, in the department of Lower Rhine, seated on the side of a mountain, and surrounded by a wall. It is eight miles N.W. of Strasburg. Lon. 7. 42 E. Lat. 48. 38 N.

WANGFRIED, a town of Germany, in the circle of Upper Rhine and principality of Hesse Rhinfels, situate on the Werra, 13 miles W. of Mulhausen, and 30 S.S.E. of Cassel. Lon. 9. 58 E. Lat. 51. 5 N.

WANLEY (Nathaniel), vicar of Trinity church, Coventry, was educated at Trinity college, Cambridge, and died about 1690, author of a curious book, called The Wonders of the little World; or, the History of Man.

WANLEY (Humphrey), son of the preceding, was born 1672 at Coventry. He preferred literature to trade, and went to Edmund hall, Oxford, and afterwards to University college. He obtained the office of secretary to the Society for propagating Christian Knowledge, and became librarian to lord Oxford, and arranged the Harleian collection, and kept a curious diary of every occurrence in which he was personally concerned. He made extracts from the MSS. of the Bodleian, and promised a supplement to Hyde's catalogue of the printed books, &c. He travelled through England in search of Anglo-Saxon MSS. and died 1726.

WA'NNED. *a.* (from *wan.*) Turned pale and faint-coloured (*Shakspeare*).

WA'NNESS. *s.* (from *wan.*) Paleness; languor.

WANSTEAD, a village in Essex, on the skirts of Epping Forest, distinguished for Wanstead House, one of the most magnificent seats in England. The church, rebuilt in 1790, is a beautiful structure of Portland stone. It is six miles N.E. of London.

To WANT. *v. a.* (ƿana, Saxon.) 1. To be without something fit or necessary (*Locke*). 2. To be defective in something (*Milton*). 3. To fall short of; not to contain (*Milton*). 4. To be without; not to have (*Dryden*). 5. To need; to have need of; to lack (*Holder*). 6. To wish; to long; to desire (*Shakspeare*).

To WANT. *v. n.* 1. To be wanted; to be improperly absent (*Denham*). 2. To fail; to be deficient (*Milton*). 3. To be missed; to be not had (*Dryden*).

WANT. *s.* 1. Need (*Milton*). 2. Deficiency (*Addison*). 3. The state of not having (*Pope*). 4. Poverty; penury; indigence (*Sw.*). 5. (ƿanꝺ, Saxon.) A mole (*Heylin*).

WANTAGE, a town in Berkshire, with a market on Saturday. It is famous for being the birthplace of king Alfred, and is seated on a branch of the Ock, 12 miles S. by W. of Oxford, and 60 W. of London. Lon. 1. 16 E. Lat. 51. 35 N.

WA'NTON. *a.* 1. Lascivious; libidinous; lecherous; lustful (*Milton*). 2. Licentious; dissolute (*Roscommon*). 3. Frolicsome; gay; sportive; airy (*Shakspeare*). 4. Loose; unrestrained (*Addison*). 5. Quick and irregular of motion (*Milton*). 6. Luxuriant; superfluous (*Milton*). 7. Not regular; turned fortuitously (*Milton*).

WA'NTON. *s.* 1. A lascivious person; a strumpet; a whoremonger (*South*). 2. A trifler; an insignificant flatterer (*Shakspeare*). 3. A word of slight endearment (*Ben Jonson*).

To WA'NTON. *v. n.* (from the noun.) 1. To play lasciviously (*Prior*). 2. To revel; to play (*Fenton*). 3. To move nimbly and irregularly.

WA'NTONLY. *ad.* (from *wanton.*) Lasciviously; frolicsomely; gayly; sportively; carelessly (*Dryden*).

WA'NTONNESS. *s.* (from *wanton*). 1. Lasciviousness; lechery (*South*). 2. Sportiveness; frolic; humour (*Pope*). 3. Licentiousness; negligence of restraint (*King Charles*).

WA'NTWIT. *s.* (*want* and *wit.*) A fool; an idiot (*Shakspeare*).

WA'NTY. *s.* A broad girth of leather, by which the load is bound upon the horse; a surcingle (*Tusser*).

WA'PED. *a.* Dejected; crushed by misery (*Shakspeare*).

WAPENTAKE, is the same with what we call a hundred; especially used in the north countries beyond the river Trent. The word seems to be of Danish original, and to be so called for this reason: when first this kingdom, or part thereof, was divided into wapentakes, he who was the chief of the wapentake or hundred, and whom we now call a high constable, as soon as he entered upon his office, appeared in a field on a certain day on horseback with a pike in his hand, and all the chief men of the hundred met him there with their lances, and touched his pike; which was a sign that they were firmly united to each other by the touching their weapons. But sir Thomas Smith says, that anciently musters were made of the armour and weapons of the several inhabitants of every wapentake; and from those that could not find sufficient pledges for their good abearing, their weapons were taken away and given to others; from whence he derives the word.

WAR. *s.* (*werre*, old Dutch; *guerre*, Fr.) 1. The exercise of violence under sovereign command against withstanders (*Raleigh*). 2. The instruments of war, in poetical language (*Prior*). 3. Forces; army. Poetically (*Milt.*). 4. The profession of arms (*Wisdom*). 5. Hostility; state of opposition; act of opposition (*Shakspeare*).

To WAR. *v. n.* (from the noun.) To make war; to be in a state of hostility (*Timothy*).

To WAR. *v. a.* To make war upon: not used (*Daniel*).

WAR, a great evil; but inevitable, and oftentimes necessary. If he who first reduced to rules the art of destroying his fellow-creatures had no end in view but to gratify the passions of princes, he was a monster, whom it would have been a duty to smother at his birth: but if his intention was the defence of persecuted virtue, or the punishment of successful wickedness, to curb ambition, or to oppose the unjust claims of superior power, mankind ought to erect altars to his memory.

War, in the last case, is the most necessary and useful of all the sciences: the various kinds of knowledge which ought to furnish the mind of a soldier are not without great difficulty to be attained. Of most other sciences the principles are fixed, or at least they may be ascertained by the assistance of experience; there needs nothing but diligence to learn them, or a particular turn of mind to practise them. Philosophy, mathematics, architecture, and many others, are all founded upon invariable combinations. Every man, even of a narrow understanding, may remember rules, apply them properly, and sometimes draw just consequences from them: but the science of war branches out into so many particulars; it takes in so many different parts; there are so many reflections necessary to be made, so many circumstances and cases to be brought together; that it is only by a continual application, grounded upon the love of his duty, and an inclination to his profession, that any man can attain it.

To march an army in every sort of country, whether open, woody, or mountainous; to know how to form a camp in all those countries, with which the general must be thoroughly acquainted in order to do it with security; to make a proper disposition for a battle, whether with a view to the posture of the enemy, or to the situation of the country; to foresee events which depend in a manner upon chance; to be capable of making a good retreat on proper occasions; to direct the forages without fatiguing or exposing the troops; to send out detachments with precaution; to conduct the convoys in safety; to know how to canton an army; to establish magazines in places, both safe and within reach of the army, so that it shall never be in want of subsistence;—these are the great ends of the military science.

It is commonly thought sufficient for a military man to know how to obey; and it is also supposed that the success of a day cannot be dubious, if a general joins the confidence of the soldiers to personal courage, a cool head, and a knowledge of the country.

It is true that, in cases of perplexity, many generals have in a great measure owed to their own capacity, and the confidence their soldiers have reposed in them, the advantages they have gained over the enemy; and confidence will always be reposed by the soldiers in that general in whom they perceive coolness united with courage. At the battle of Cannæ, when Gisco seemed to be much astonished at the superiority of the enemy's number, Hannibal answered him coolly, "There is, Gisco, a thing still more surprising, of which you take no notice." Gisco asking him what it was, "It is (replied Hannibal) that in all that great crowd there is not one man whose name is Gisco." Plutarch observes, that this coolness of Hannibal greatly animated the Carthaginians, who could not imagine that their general would joke at so important a time, without being certain of overcoming his enemies.

Although bravery and courage are the most essential qualifications of a subordinate officer, yet he should not be deficient in those which are required in a general, and which have been already mentioned; obedience to the orders delivered to him is no longer a virtue than whilst he comprehends and knows the intention of them. War, says a celebrated author, is a business which, like all others, must be learned; it supposes some qualities to be born with us, and demands others which are to be acquired: but since all these qualities must have the original source in genius, a man who proposes war for his profession should never engage in it without having consulted his natural bent, or without knowing the particular turn and power of his mind. Ability, whether in a general or an officer, is the effect of his genius, quickened by a natural liking to his business.

A quick eye, which is of great importance to a soldier, is natural to some, and in them it is the effect of genius; others acquire it by study or experience; he who knows how to command himself, and has courage enough to keep himself cool on the most urgent occasions, has the readiest and quickest eye. A quick, hot-headed man, however brave, sees nothing; or if he does, it is confusedly, and generally too late.

It is this quick eye which enables a general to judge of an advantageous post, of a manœuvre to be made, and of a good disposition for the troops, whether with respect to that of the enemy, or to the situation and nature of the country.

The quick-eye is no other than that penetrating genius which lets nothing escape it. A general who knows how to unite this quality with perpetual coolness, never is in want of expedients; he will see how those events, which to any other would be the presage of his own defeat, may end in the overthrow of his enemies.

The choice of the general officers depends upon this genius, which discovers every thing; they ought to be the right-hand of the general, and as capable of commanding the army as himself. Whatever good dispositions a general may make, they must prove ineffectual if not seconded by the general officers under his command; he cannot be every-where, neither can he foresee all exigencies that may arise. He is obliged to give only general orders; it is therefore the business of those who command under him to know how to take the advantage of a wrong movement of the enemy; to take upon them to attack, or sustain the troops which are engaged; and, as circumstances vary, to make them advance towards the enemy, either to keep him back or to attack him.

But the qualities already mentioned would be useless, if order and discipline were not severely observed: the most numerous and best composed army would soon become little else than a body of rangers, who being only united by the hope of booty, would separate as soon as that motive ceased; and trusting each to his own head, or indulging his own humour, would be cut in pieces party by party: so that if the general does not keep up subordination (the soul and strength of discipline), his army will be nothing more than a troop of Tartars acting more from the hope of plunder than the desire of glory. What art and what genius is there not requisite to maintain this subordination? Too much severity disgusts the soldier, and renders him mutinous; too much indulgence sinks him into indolence, and makes him neglect his duty; licentiousness causes that subordination to seem burdensome, which should never in any degree be given up: he loses that respect, and often that confidence, which he should have with regard to his officer; and indulgence often makes a well-disciplined body become a set of sluggards, who march against their will, and who, on the most pressing emergencies, think only on their own safety.

Besides these qualities, which are essential to a general, and which all who would attain that rank ought of course to have, there are still many others necessary to make a great man. A general who would merit the title of a hero, ought to unite in himself all civil, military, and political excellence. It is by this that he will easily attain to make war with success: nothing will escape him; he will know without difficulty the genius of every country, and of the nations which compose the enemy's army, the abilities of the generals who command, and the nature of the troops under them; he knows that he may venture a motion with some troops that he would not dare to attempt with others that are equally brave. One nation is vehement, fiery, and formidable in the first onset; another is not so hasty, but of more perseverance: with the former, a single instant determines success; with the latter, the action is not so rapid, but the event is less doubtful.

No man is born a general, although he brings into the world with him the seeds of those virtues which make a great man: Cæsar, Spinola, Turenne, the great Condé, and some others, showed, even in their earliest years, such qualities as ranked them above other men; they carried within them the principles of those great virtues which they drew forth to action by profound study, and which they brought to perfection by the help of practice: those who came after them, with perhaps fewer natural talents, have by study rendered themselves worthy of being compared to them. Cæsar and all conquerors had this advantage, that they were able to make their own opportunities, and always acted by their own choice. A man may be a good general without being a Marlborough or a Turenne: such geniuses are scarcely seen once in an age; but the more they are raised above the rest of mankind, the more they ought to excite emulation. It is by endeavouring to surpass the intellects of the second rate; it is by striving to equal the most sublime, that the imitation of them is to be attained. This passion in a soldier is neither pride nor presumption; it is virtue; and it is by this only that he can hope to be serviceable to the state, and add to the glory of his king and country.

We shall not attempt to treat in this place of the art of war; because an article to that effect, to be of any service, should rather occupy a volume than a few pages. But we shall here present a connected view of the periods and durations of the most remarkable wars in which this country has been engaged since the war with Scotland, 1068.

Peace with { Scotland, 1113.
France, 1113.

War with France, 1116.

Peace with { ditto, 1118.
Scotland, 1139.

War with France, 1161.

Peace with ditto, 1186.

War again with France, with success, 1194.

Peace with ditto, 1195.

Civil war { renewed, 1215—ended, 1216.
with France, 1224—ended, 1234.
1262—ended, 1267.
with France, 1294.
with Scotland, 1296.

Peace { with France, 1299.
with Scotland, 1323.

War { again with Scotland, 1327.
ended, 1328.
again with Scotland, 1333.
with France, 1339.

Peace with France, May 8, 1360.

War { with France, 1368.
civil, 1460.
with Scotland, 1400.

Peace with France, May 31, 1420.

War { with France, 1422.
civil, between York and Lancaster, 1452.

Peace with France, October, 1471.

War { civil, 1486.
with France, Oct. 6, 1492.

Peace { with ditto, Nov. 3, 1492.
with Scotland, 1502.

War { with France, Feb. 4, 1512.
with Scotland, 1513.

Peace with France, Aug. 7, 1514.

War with { ditto, 1522.
Scotland, 1522.

Peace with { France, 1527.
Scotland, 1542.

War with Scotland directly after.

Peace with France and Scotland, June 7, 1546.

War with { Scotland, 1547.
France, 1549.

Peace with both, March 6, 1550.

War { civil, 1553.
with France, June 7, 1557.
with Scotland, 1557.

Peace with { France, April 2, 1559.
Scotland, 1560.

War } with France { 1562.
Peace } 1564.

War with { Scotland, 1570.
Spain, 1588.

Peace with Spain, Aug. 18, 1604.

War with { Spain, 1624.
France, 1627.

Peace with Spain and France, April 14, 1629.

War { civil, 1642.
with the Dutch, 1651.

Peace with the Dutch, April 5, 1654.

War with Spain, 1655.

Peace with Spain, Sept. 10, 1660.

War with France, Jan. 26, 1666.
War with Denmark, Oct. 19, 1666.

Peace with the French, Danes, and Dutch, Aug. 24, 1667.

Peace with Spain, Feb. 13, 1668.

War with the Algerines, Sept. 6, 1669.

Peace with ditto, Nov. 19, 1671.

War with the Dutch, March, 1672.

Peace with ditto, Feb. 28, 1674.

War with France, May 7, 1689.

Peace, general, of Rhyswick, Sep. 20, 1697.

War with France, May 4, 1702.

Peace of Utrecht, March 13, 1713.

War with Spain, Dec. 1718.

Peace with ditto, 1721.

War with Spain, 1739.
War with France, March 31, 1744.
War with France, 1756.
War with Spain, Jan. 4, 1762.

Peace with France and Spain, Feb. 10, 1763.

War with the Caribbs of St. Vincent in 1773.

War civil, in America, commenced July 14, 1774.
War with France, Feb. 6, 1778.
War with Spain, April 17, 1780.
War with Holland, 1780.

Peace with France, Spain, Holland, America, Sept. 3, 1783.

War with France by the English, Prussians, Austrians, and other German powers, in 1793.

Peace between Prussia and the French Republic, 1795.

Peace between Spain and the French Republic, 1795.

Peace between the French and the Sardinians in 1796.

Peace between the French and the Austrians in 1797.

War between the British and Tippoo Saib in India, in 1797.

War with the French Republic by the Austrians, Russians, Neapolitans, &c. 1798.

War with the Turks, and the invasion of Egypt, in 1798.

Peace between the French and the Russians in 1799.

Peace between the French and Austrians in 1800.

Preliminaries of peace commenced between the French and the Ottoman empire in consequence of the reduction of Egypt by the British forces in 1801.

Preliminaries of peace between France and Great Britain, &c. 1801.

Peace between France and England, 1802.

War with France, 1803: not terminated in June, 1813.

That our readers may form a correct estimate of the expence attending some of these wars, we beg to present the following tabular view of the wars in which this country has been engaged since the revolution in 1688:—

No. of wars.	With whom.	In what reign.	When began.	When ended.	By whom ended, and where.	Duration of each war.			Duration of each peace.			Debt begin. of each war.	Debt contract in each war.	Total debt at end each war.	Debt paid off each peace.	Average annual revenue.
						Years.	Months.	Days.	Years.	Months.	Days.	£.	£.	£.	£.	£.
1.	France.	Wil. III.	May 7, 1689.	Feb. 10, 1697.	Earl Pembroke, at Rhyswick.	7	9	3	4	2	22	664,262	20,035,707	20,700,000	4,200,000	3,000,000
2.	France & Spain.	Anne.	May 4, 1701.	Mar. 13, 1713.	Earl Stratford, at Utretcht.	11	10	9	5	9	3	16,500,000	35,500,000	52,000,000	2,000,000	3,700,000
3.	Spain.	Geo. I.	Dec. 16, 1718.	June 13, 1721.	Duke of Somerset, at Madrid.	2	5	28	18	4	6	50,000,000	6,000,000	56,000,000	6,000,000	4,000,000
4.	Spain.	Geo. II.	Oct. 19, 1739.	Oct. 18, 1748.	Earl Sandwich, at Aix-le-Chapelle.	8	11	30	7	7	0	50,000,000	28,000,000	78,000,000	4,000,000	6,000,000
5.	France.	G. 2 & 3.	May 18, 1756.	Feb. 10, 1763.	Duke of Bedford, at Fontainbleau.	6	8	21	12	2	9	74,000,000	73,000,000	147,000,000	11,000,000	7,000,000
6.	America, &c.	Geo. III.	Apr. 19, 1775.	Sept. 3, 1783.	Mr. Grenville, at Paris.	8	4	15	9	5	8	136,000,000	110,000,000	246,000,000	Sinking fund has paid off upwards of 200,000,000*l*.	11,000,000
7.	France.	Geo. III.	Feb. 11, 1793.	Mar. 27, 1802.	Marquis Cornwallis, at Amiens.	9	1	16	0	11	11	*272,000,000	347,000,000	619,000,000		25,000,000
8.	France, &c.	Geo. III.	Mar. 9, 1803.									619,000,000				

* In this peace of nine years the debt increased 26,000,000*l*.

Thus it appears, that of a period of almost 125 years, which has elapsed since the revolution, upwards of one-half, or nearly 66 years, have passed in bloodshed and devastation. That in the present sovereign's reign, upwards of 30 years have been employed in the same manner. It appears that at the commencement of the last century our funded expenditure, in prosecuting war, averaged little more than three millions per annum. The war with America, &c. cost more than double that sum, or six millions per annum; and the late war with France added to our national debt upwards of thirty-eight millions per annum, or a total of 347,000,000l.—What the average expenditure of the present contest may prove, remains yet to be ascertained; but it was asserted in the House of Commons, without being contradicted, that our present expenditure in defence of Spain and Portugal amounted to one million per week. It is to be observed, that the accumulation of funded debt is by no means the whole of the charge incurred in these contentions; that the expence of them used formerly to be borne in some degree by annual grants, in addition to the loans—this was also the case in the last war, and is so in the present; but perhaps not in the same proportion as heretofore.

It is further to be remarked, that on reference to the pretences on which these wars have commenced, few have been the instances when the object originally contended for has been obtained, and that peace has in general been concluded, without the least notice of what was the primary cause of the dispute; on this point let us confine our observations to the wars of the present reign.—The avowed pretext for a war with America was to impose taxes upon that continent by the enactments of the British parliament, without ever consulting the provincial assemblies; to obtain this, upwards of 100 millions of money was expended, and one hundred thousand lives sacrificed; yet peace acknowledged their independence of the mother country.

The war of 1793 was ostensibly to protect the Dutch—to prevent the Scheldt from being opened—to rescue the Netherlands from France and restore them to the emperor. These, however, were mere pretexts—the real intention was to interpose with the internal government of France, and to restore, if possible, the throne of the Bourbons. Not one of these objects was obtained, though we contended for more than nine years, at an expence of nearly four hundred millions of money, and with an almost unexampled waste of human life.

War (Different kinds of). There are four different kinds of war, each of which is to be conducted differently the one from the other, viz. the offensive; the defensive; that between equal powers; and the auxiliary, which is carried on out of our own territories to succour a prince or ally, or to assist a weaker whom a more powerful prince has attacked.

Offensive war must be long meditated on in private before it is openly entered upon; when the success will depend upon two essential points; that the plan shall be justly formed, and the enterprise conducted with order. It should be well and maturely considered and digested, and with the greatest secrecy; lest, however able the prince or his council may be, some of the precautions necessary to be taken should be discovered. These precautions are infinite both at home and abroad.

Abroad, they consist in alliances, and security not to be disturbed in the meditated expedition, foreign levies, and the buying up of warlike ammunition, as well to increase your own stores as to prevent the enemy from getting them.

The precautions at home consist in providing for the security of our distant frontiers, levying new troops, or augmenting the old ones, with as little noise as possible; furnishing your magazines with ammunition; constructing carriages for artillery and provisions; buying up horses, which should be done as much as possible among your neighbours; both to prevent their furnishing the enemy, and to preserve your own for the cavalry and the particular equipages of the officers.

Defensive war may be divided into three kinds. It is either a war sustained by a prince, who is suddenly attacked by another superior to him in troops and in means; or a prince makes this sort of war by choice on one side of his frontiers, while he carries on offensive war elsewhere; or it is a war become defensive by the loss of a battle.

A defensive war which a prince attacked by a superior enemy sustains depends entirely on the capacity of his general. His particular application should be, to choose advantageous camps to stop the enemy, without however being obliged to fight him; to multiply small advantages; to harass and perplex the enemy in his foraging parties, and to oblige them to do it with great escorts; to attack their convoys; to render the passages of rivers or defiles as difficult to them as possible; to force them to keep together; if they want to attack a town, to throw in succours before it is invested; in short, in the beginning his chief aim should be to acquire the enemy's respect by his vigilance and activity, and by forcing him to be circumspect in his marches and manner of encampment, to gain time himself, and make the enemy lose it. An able general, carefully pursuing these maxims, will give courage to his soldiers, and to the inhabitants of the country; he gives time to his prince to take proper precautions to resist the enemy who attacks him; and thus changes the nature of this vexatious kind of warfare.

The management of a defensive war requires more military judgment than that of an offensive one.

A war between equal powers is that in which the neighbouring princes take no part, so long as the belligerent parties obtain no great advantage, the one over the other. This sort of war never should last long if you want to reap any advantages from it. As to its rules, they are entirely conformable to those already given; but we may look on it as a certain maxim in this sort of war, that the general who is the most active and penetrating, will ever in the end prevail over him, who possesses these qualities in a less degree; because, by his activity and penetration, he will multiply small advantages, till at last they procure him a decisive superiority. A general who is continually attentive to procure himself small advantages, ever obtains his end, which is to ruin the enemy's army; in which case he changes the nature of the war, and makes it offensive; which should ever be the chief object of his prince.

Auxiliary war is that in which a prince succours his neighbours, either in consequence of alliances, or engagements entered into with them, or sometimes to prevent their falling under the power of an ambitious prince.

To WA'RBLE. *v. a.* (*werben*, old Teutonic, *wervelen*, German, to twirl.) 1. To quaver any sound (*Milton*). 2. To cause to quaver (*Milton*). 3. To utter musically (*Milton*).

To WA'RBLE. *v. n.* 1. To be quavered (*Gay*). 2. To be uttered melodiously (*Sidney*). 3. To sing (*Milton*).

WA'RBLER. *s.* (from *warble.*) A singer; a songster (*Tickel*).

WARBLER, in ornithology. See MOTACILLA.

WARBLES, in a horse, are small hard tumours, or swellings, upon the saddling part of a horse's back, occasioned by the heat of the saddle in travelling. They are cured by bathing them often with spirits of wine and oil of turpentine.

WARBURTON (William), a prelate, born at Newark, Nottinghamshire, 24th December, 1698. He was educated at Okeham school, and brought up to the business of his father, an attorney and town-clerk of the town of Newark. Though he practised for some years in his native town, it is believed that he had little business, and consequently he applied his classical knowledge to pursuits more congenial to his taste, and took orders. In 1724 he published Miscellaneous Transactions in Prose and Verse from Roman Historians, &c. and three years after, his Critical and Philosophical Inquiry into the Causes of Prodigies and Miracles as related by Historians. His learning recommended him to the notice of Theobald, and other wits, and by the friendship of Robert Sutton, to whom he had dedicated his two works, he was presented to the living of Burnt Broughton, worth 200l. a year. In 1728 he was created master of arts in consequence of the king's visit to Cambridge, and in 1736 he published the Alliance between Church and State, or the Necessity and Equity of an established Religion and a Test Law, &c. and in 1738 appeared his Divine Legation of Moses, demonstrated on the principles of a religious deist, from the omissions of the doctrines of a future state of rewards and punishments in the Jewish dispensation, in six books. This work drew upon him several enemies, and he vindicated himself against them. In 1739 he defended Pope's Essay on Man, and this ensured him the friendship of the poet, and a warm recommendation to the great, and among these to Mr. Allen of Prior park. At his death in 1744, Pope left the publication of his works to his friend, a bequest worth about 4000l. At that time Warburton published an answer to the objections raised against his Divine Legation, and directed his censures against Middleton, Pococke, and others. On the following year he cemented his intimacy with Mr. Allen by marrying his niece, Miss Tucker, an event which procured to him the inheritance of that gentleman's property, and paved the way to preferment. Though acknowledged as an able divine, and a zealous advocate in favour of the church establishment, he yet received no reward. In 1746, however, he was called by the society of Lincoln's-inn to be their preacher; in 1754 was made king's chaplain, and prebendary of Durham. In 1757 he was advanced to the deanery of Bristol, and two years after his services to religion and literature were rewarded with the see of Gloucester. In the last years of life he sunk into deep melancholy, which was aggravated by the loss of an only son, who fell a victim to a consumption. He died at Gloucester, 7th June, 1779, aged 81. His works are numerous and respectable. Besides the Divine Legation, a work often reprinted, in 3 vols. 8vo. and 2 vols. 4to. &c. he published Julian, or a Discourse on the Earthquake and fiery Eruptions which defeated that Emperor's Attempt to rebuild the Temple of Jerusalem; Sermons, 2 vols. 8vo. &c.; a View of Lord Bolingbroke's Philosophy; a tract on the Lord's Supper; a treatise against the Methodists on the Doctrine of Grace; an edition of Shakespeare, severely criticized in the Canons of Criticism by Edwards; Pope's Works, 9 vols. 8vo. &c. His works have appeared together in 6 vols. 4to. edited by bishop Hurd; and since the death of the latter prelate, there has been published a volume of Warburton's letters to him. Warburton founded in 1768 a lecture at Lincoln's-inn to prove the truth of revealed religion from the completion of the scripture prophecies. The character of Warburton is summed up by Dr. Johnson. "He was," as he observes, "a man of vigorous faculties, a mind fervid and vehement, supplied by incessant and unlimited inquiry, with wonderful extent and variety of knowledge. To every work he brought a memory full fraught, together with a fancy fertile of original combinations, and at once exerted the powers of the scholar, the reasoner, and the wit. But his knowledge was too multifarious to be always exact; and his pursuits too eager to be always cautious. His abilities gave him a haughty consequence, which he disdained to conceal or mollify; and his impatience of opposition disposed him to treat his adversaries with such contemptuous superiority, as made his readers commonly his enemies. His style is copious without selection, and forcible without neatness; he took the words that presented themselves; his diction is coarse and impure, and his sentences are unmeasured."

For other estimates of the talents and character of this great man, see the Christian Observer, for September 1809, and the Quarterly Review, No. 14.

WARD. A syllable much used as an affix in composition, as *heavenward*, with tendency to heaven; *hitherward*, this way; from ƿeaꞃꝺ, Saxon: it notes tendency *to* or *from* (*Sidney*).

To Ward. *v. a.* (ƿeaꞃꝺian, Saxon; *waren*, Dutch; *garder*, French.) 1. To guard; to watch (*Spenser*). 2. To defend; to protect (*Shakspeare*). 3. To fence off; to obstruct or turn aside any thing mischievous (*Fairfax*).

To Ward. *v. n.* 1. To be vigilant; to keep guard. 2. To act upon the defensive with a weapon (*Dryden*).

Ward. *s.* (from the verb.) 1. Watch; act of guarding (*Dryden*). 2. Garrison; those who are entrusted to keep a place (*Spenser*). 3. Guard made by a weapon in fencing (*Shakspeare*). 4. Fortress; strong hold (*Shakspeare*). 5. District of a town (*Dryden*). 6. Custody; confinement (*Hooker*). 7. The part of a lock, which, corresponding to the proper key, hinders any other from opening it (*Grew*). 8. One in the hands of a guardian (*Otway*). 9. The state of a child under a guardian (*Bacon*). 10. Guardianship; right over orphans (*Spenser*).

Ward (Samuel, D.D.), scholar of Christ college, fellow of Emanuel, and in 1609 master of Sidney, Cambridge, was also archdeacon of Taunton, and Margaret professor of divinity. He was sent to the synod of Dordt, where he relaxed from his attachment to the doctrines of Calvin. He suffered persecution during the civil war, and was treated with such harshness, that he died in consequence, 1643. He was author of some theological tracts, &c.

Ward (Edward), in the 17th century, was an uncouth imitater of Butler's Hudibrastic rhymes. He wrote the Reformation, a burlesque poem; the London Spy; and Don Quixote in Hudibrastic verse. He was a great tory, and the public house which he kept was frequented by persons of his political opinions.

Ward (Seth), well known as a mathematician and astronomer, was born in Buntingford, Herts, 1617, and after studying in the school of his native town, he removed in 1632 to Sidney college, Cambridge. After leaving Cambridge, he was tutor in various families, and on the expulsion of Greaves from the Savilian professorship of astronomy at Oxford, he was appointed his successor, and entering at Wadham college, he took the requisite oaths in 1649. In 1654 he had a dispute with Dr. Wallis about precedency in taking their degrees of D. D., and three years after he was chosen principal of Jesus college, but was disappointed by the nomination of Howell to that office by Cromwell. In 1659 he was elected president of Trinity college; but at the restoration resigned it, and obtained the rectory of St. Lawrence Jewry, and the precentorship of Exeter church. In 1661 he was made fellow of the Royal Society, and dean of Exeter, and the next year bishop of that see. In 1667 he was translated to Salisbury, and 1671 obtained the chancellorship of the garter, an honour which he had the interest to annex to his successors at Sarum. In the last years of life he was deprived of his faculties, and died 1689, a melancholy instance of weak mortality. In his character he was a prudent, pious, and ingenious man, admirably skilled not only in mathematics, but also in all kinds of polite literature, and he was, as Burnet has observed, one of the greatest men of his age. He was author of a philosophical essay on the Being and Attributes of God, &c.; Exercitatio Epistolica in Hobbii Philosophiam, 8vo.; Sermons; an Idea of Trigonometry; Geometrical Astronomy, &c.

Ward (Dr. John), born at London in 1679. In 1720 he was chosen professor of rhetoric in Gresham college; in 1723 he was elected a fellow of the Royal Society; and in 1752 one of the vice-presidents, in which office he continued till his death. He was elected one of the trustees of the British Museum in 1753, and died at Gresham college in 1758. He wrote the Lives of the Professors of Gresham College, and Lectures on Oratory, 2 vols.

WARDEIN (Great), a strong town of Hungary, capital of a county of the same name, and a bishop's see with a citadel. The town itself is not large, but has three suburbs of very considerable extent. It was taken by the Turks in 1660, but the Austrians retook it in 1692. It is seated on the Keres, 117 miles N.E. of Peterwardein, and 150 E.S.E. of Buda. Lon. 21. 50 E. Lat. 47. 5 N.

Wardein (Little), a strong town of Croatia, capital of a county of the same name. It is seated on the Drave, 34 miles N. by E. of Agram, and 50 S.E. of Gratz. Lon. 15. 55 E. Lat. 46. 40 N.

WARDEN, one who has the charge or keeping of any person, or thing, by office. Such is the warden of the Fleet, the keeper of the Fleet-prison; who has the charge of the prisoners there, especially such as are committed from the court of Chancery for contempt.

Warden, in an university, is the head of a college, answering to what in other colleges we call the master. Warden, or lord-warden of the Cinque-ports, is the governor of these noted havens, who has the authority of an admiral, and sends out writs in his own name. Warden of the mint, is an officer whose business it is to receive the gold and silver bullion brought by the merchants, to pay them for it, and oversee the other officers. He is called keeper of the exchange and mint.

Warden (Church). See Churchwarden.

WARDER, *s.* (from *ward*.) 1. A keeper; a guard (*Dryden*). 2. A truncheon by which an officer of arms forbade fight (*Shakspeare*).

WARDHUYS, a seaport of Norway, capital of a government of the same name, which includes Danish Lapland. It stands on a small island of the same name, near the continent, and has an old fort, where the governor resides. It is 120 miles E.S.E. of the North Cape. Lon. 31. 7 E. Lat. 70. 23 N.

WA'RDMOTE. *s.* (peaꞃꝺ and mote, or ᵹemoꞇ, Saxon.) A meeting; a court held in each ward or district in London, for the direction of their affairs.

WA'RDROBE. *s.* (*garderobe*, French.) A room where clothes are kept (*Addison*).

WA'RDSHIP. *s.* (from *ward.*) 1. Guardianship (*Bacon*). 2. Pupilage; state of being under ward (*King Charles*).

Wardship. In our ancient customs, when the tenant died, and his heir was under the age of twenty-one being a male, or fourteen being a female, the lord was entitled to the wardship of the heir, and was called the guardian in chivalry. This wardship consisted in having the custody of the body and lands of such heir, without any account of the profits, till the age of twenty-one in males, and fourteen (which was afterwards advanced to sixteen) in females. For the law supposed the heir male unable to perform knight's service till twenty-one; but as for the female, she was supposed capable at fourteen to marry, and then her husband might perform the office. 2 Black. 67. This privilege of the lord's was abolished under the commonwealth, and the abolition confirmed by stat. 12. C. II. c. 24.

WARE. The preterit of *wear*, more frequently *wore* (*Luke*).

Ware. *a.* (we commonly say *aware*). 1. Being in expectation of; being provided against (*Mat.*). 2. Cautious; wary (*Spenser*).

To **Ware.** *v. n.* To take heed of; to beware (*Dryden*).

Ware. *s.* (paꞃn, Saxon; *waere*, Dutch; *wara*, Swedish.) Commonly something to be sold (*Ben Jonson*).

Ware, a town in Hertfordshire, with a market on Tuesday. It is seated on the river Lea, by which large quantities of malt and corn are sent to London, and the barges return with coal. It is two miles E. by N. of Hertford, and 21 N. by E. of London.

At the distance of about a mile from this town is the origin of the New River, which conducts water to a reservoir at Islington, partly for the supply of London.

WAREE, a town of Guinea, capital of a country of its name, in the kingdom of Benin. It is 70 miles S.S.W. of Benin. Lon. 6. 0 E. Lat. 5. 38 N.

WA'REFUL. *a.* (*ware* and *full.*) Cautious; timorously prudent.

WA'REFULNESS. *s.* (from *wareful.*) Cautiousness: obsolete (*Sidney*).

WAREHAM, a borough in Dorsetshire, governed by a mayor, with a market on Saturday. It is seated between the Frome and Piddle, at their entrance into Lochford lake, the west part of Poole harbour. It had eight churches, now reduced to three; also a wall of earth, and a castle; but has suffered much by the various turns of fortune, and the harbour is almost choked up. In 1762, two-thirds of the town was destroyed by fire, but has been rebuilt. Above the bridge, over the Frome, is a good salmon fishery: and in the neighbourhood fine tobacco-pipe clay is dug, of which nearly 10,000 tons are annually sent coastwise. Wareham is the birth-place of the celebrated Horace Walpole. It is twenty miles E. of Dorchester, and 112 W. by S. of London.

WA'REHOUSE. *s.* (*ware* and *house.*) A storehouse of merchandise (*Addison*).

WA'RELESS. *a.* (from *ware.*) Uncautious; unwary (*Spenser*).

WA'RELY. *ad.* (from *ware.*) Warily; cautiously; timorously (*Spenser*).

WA'RFARE. *s.* (*war* and *fare.*) Military service; military life; state of contest and solicitude (*Rogers*).

To **Wa'rfare.** *v. n.* (from the noun.) To lead a military life (*Camden*).

WARGENTIN (Peter), a Swedish mathematician, was born in 1717. In this country he is best known from his tables for computing the eclipses of Jupiter's satellites. He died at the Observatory at Stockholm in 1783.

WA'RHABLE. *a.* (*war*, and *habile*, Lat.) Military; fit for war (*Spenser*).

WA'RILY. *ad.* (from *wary.*) Cautiously; with timorous prudence; with wise forethought (*Hooker*).

WA'RINESS. *s.* (from *wary.*) Caution; prudent forethought; timorous scrupulousness (*Sprat*).

WARING (Edward, M.D.), Lucasian professor of mathematics in the university of Cambridge, was the son of a wealthy farmer, of the Old Heath, near Shrewsbury. The early part of his education he received at the free-school in Shrewsbury; whence he removed to Cambridge, and was admitted on the 24th of March, 1753, a member of Magdalen college. Here his talents for abstruse calculation soon developed themselves, and, at the time of taking his degree, he was considered as a prodigy in those sciences which make the subject of the bachelor's examination. The name of Senior Wrangler, or the first of the year, was thought scarcely a sufficient honour to distinguish one who so far outshone his contemporaries; and the merits of John Jebb were sufficiently acknowledged, by being the second in the list. Waring took his first, or bachelor's degree, in 1757, and the Lucasian professorship became vacant before he was of sufficient standing for the next, or master's degree, which is a necessary qualification for that office. This defect was supplied by a royal mandate, through which he became master of arts in 1760; and shortly after his admission to this degree, the Lucasian professor. In 1762, he published his Miscellanea Analytica; one of the most abstruse books written on the abstrusest parts of algebra. This work extended his fame over all Europe. He was elected, without solicitation on his part, member of the societies of Bononia and Gottingen; and received flattering marks of esteem from the most eminent mathematicians at home and abroad. The difficulty of this work may be presumed from the writer's own words, "I cannot say that I know any one who thought it worth while to read through the whole, and perhaps not the half of it."

Mathematics did not, however, engross the whole of his attention. He could dedicate some time to the study of his future profession; and in 1767, he was admitted to the degree of doctor of physic; but, whether from the incapacity of uniting together the employments of active life with abstruse speculation, or from the natural diffidence of his temper, for which he was most peculiarly remarkable, the degree which gave him the right of exercising his talents in medicine was to him merely a barren title. Indeed he was so embarrassed in his manners before strangers, that he could not have made his way in a profession in which so much is done by address; and it was fortunate that the case of his circumstances permitted him to devote the whole of his time to his favourite pursuit. His life passed on, marked out by discoveries, chiefly in abstract science; and by the publication of them in the Philosophical Transactions, or in separate volumes, under his own inspection. He lived some years after taking his doctor's degree, at St. Ives, in Huntingdonshire. While at Cambridge he married—quitted Cambridge with a view of living at Shrewsbury; but the air or smoke of the town being injurious to Mrs. Waring's health, he removed to his own estate at Plaisley, about eight miles from Shrewsbury, where he died in 1797, universally esteemed for inflexible integrity, modesty, plainness, and simplicity of manners. They who knew the greatness of his mind from his writings looked up to him with reverence everywhere; but he enjoyed himself in domestic circles with those chiefly among whom his pursuits could not be the object either of admiration or envy. The outward pomp which is affected frequently in the higher departments in academic life was no gratification to one whose habits were of a very opposite nature; and he was too much occupied in science to attend to the intrigues of the university. There, in all questions of science, his word was the law; and at the annual examination of the candidates for the prize instituted by Dr. Smith, he appeared to the greatest advantage. The candidates were generally three or four of the best proficients in the mathematics at the previous annual examination for the bachelor's degree, who were employed from nine o'clock in the morning to ten at night, with the exception of two hours for dinner, and twenty minutes for tea, in answering, *viva voce*, or writing down answers to the professor's questions, from the first rudiments of philosophy to the deepest parts of his own and sir Isaac Newton's works. Perhaps no part of Europe affords an instance of so severe a process; and there was never any ground for suspecting the professor of partiality. The zeal and judgment with which he performed this part of his office cannot be obliterated from the memory of those who passed through his fiery ordeal.

Wishing to do ample justice to the talents and virtue of the professor, we feel ourselves somewhat at a loss in speaking of the writings by which alone he will be known to posterity. He is the discoverer, according to his own account, of nearly 400 propositions in the analytics. This may appear a vain-glorious boast, especially as the greater part of those discoveries are likely to sink into oblivion; but he was, in a manner, compelled to make it by the insolence of Lalande, who, in his life of Condorcet, asserts that, in 1764, there was no first-rate analyst in England. In reply to this assertion, the professor, in a letter to Dr. Maskelyne, first mentions, with proper respect, the inventions and writings of Harriot, Briggs, Napier, Wallis, Halley, Bruncker, Wren, Pell, Barrow, Mercator, Newton, De Moivre, Maclaurin, Cotes, Stirling, Taylor, Simpson, Emerson, Landen, and others; of whom Emerson and Landen were living in 1764. He then gives a fair and full detail of his own inventions, of which many were published anterior to 1764; and concludes his letter in these words.

"I know that Mr. Lalande is a first-rate astronomer, and writer of astronomy; but I never heard that he was much conversant in the deeper parts of mathematics; for which reason I take the liberty to ask him the following questions:

"Has he ever read or understood the writings of the English mathematicians: and, as the question comes from me, I subjoin, particularly of mine? If the answer be in the negative, as it is my opinion, if his answer be the truth, that it will, then there is an end of all further controversy;—but if he asserts that he has, which is more than Condorcet did by his own acknowledgment, then he may know, from the enumeration of inventions made in the prefaces, with some subsequent ones added, that they are said to amount to more than 400 of one kind or other. Let him try to reduce those to as low a number as he can, with the least appearance of candour and truth; and then let him compare the number with the number of inventions of any French mathematician or mathematicians, either in the present or past times, and there will result a comparison (if I mistake not) not much to his liking; and, further, let him compare some of the first inventions of the French mathematicians with some of the first contained in my works, both as to utility, generality, novelty, difficulty, and elegance, but wisely as to utility, there is little contained in the deep parts of any science; he will find their difficulty and novelty from his difficulty of understanding them, and his never having read any similar before; their generality, by the application of them; principles of elegance will differ in different persons.—I must say, that he will probably not find the difference expected. After or before this inquiry is instituted for mine, let him perform the same for the other English mathematicians; and when he has completed such inquiries, and not before, he will become a judge of the justice of his assertion; but I am afraid that he is not a sufficient adept in these studies to institute such inquiries; and if he was, such inquiries are invidious, troublesome, and of small utility."

By mathematical readers this account, which was not published by the professor himself, is allowed to be very little, if at all, exaggerated. Yet if, according to his own confession, "few thought it worth their while to read even half of his works," there must be some grounds for this neglect, either from the difficulty of the subject, the unimportance of the discoveries, or a defect in the communication of them to the public. The subjects are certainly of a difficult nature, the calculations are abstruse; yet Europe contained many persons not to be deterred by the most intricate theorems. Shall we say then, that the discoveries were unimportant? If this were really the case, the want of utility would be a very small disparagement among those who cultivate science with a view chiefly to entertainment and the exercise of their rational powers. We are compelled, then, to attribute much of this neglect to a perplexity in style, manner, and language; the reader is stopped at every instant, first to make out the writer's meaning, then to fill up the chasm in the demonstration. He must invent anew every invention; for, after the enunciation of the theorem or problem, and the mention of a few steps, little assistance is derived from the professor's powers of explanation.

The Proprietates Algebraicarum Curvarum, published in 1772; the Meditationes Algebraicæ, published in 1770; and the Meditationes Analyticæ, which were in the press during the years 1773, 1774, 1775, 1776, were the chief and the most laborious works edited by the professor; and in the Philosophical Transactions is to be found a variety of papers, which alone would be sufficient to place him in the first rank in the mathematical world. The nature of them may be seen from the following catalogue.

Vol. liii. p. 294, Mathematical Problems; liv. 193, New Properties in Conics; lv. 143, Two Theorems in Mathematics; lxix. Problems concerning Interpolations; 86, a General Resolution of Algebraical Equations; lxxvi. 80, on Infinite Series; lxxvii. 71, on Finding the Values of Algebraical Quantities by Converging Serieses, and Demonstrating and Extending Propositions given by Pappus and others; lxxviii. 67, on Centripetal Forces; *ib.* 588, on some Properties of the Sum of the Division of Numbers; lxxix. 166, on the Method of Correspondent Values, &c.; *ib.* 185, on the Resolution of Attractive Powers; lxxxi. 146, on Infinite Serieses; lxxxiv. 385—415, on the Summation of those Serieses whose general term is a determinate function of z, the distance of the term of the Series.

For these papers, the professor was, in 1784, deservedly honoured by the Royal Society with sir Godfrey Copley's medal; and most of them afford very strong proofs of the powers of his mind, both in abstract science, and the application of it to philosophy; though they labour, in common with his other works, under the disadvantage of being clothed in a very unattractive form. The mathematician, who has resolution to go through them, will not only add much to his own knowledge, but be usefully employed in dilating on those articles for the benefit of the more general reader. We might add in this place, a work written on morals and metaphysics in the English language; but as a few copies only were presented to his friends, and it was the professor's wish that they should not have a more extensive circulation, we shall not here enlarge upon its contents.

In the mathematical world, the life of Waring may be considered as a distinguished era. The strictness of demonstration required by the ancients had gradually fallen into disuse, and a more commodious, though almost mechanical mode by algebra and fluxions took its place, and was carried to the utmost limit by the professor. Hence many new demonstrations may be attributed to him, but 400 discoveries can scarcely fall to the lot of a human being. If we examine thoroughly those which our professor would distinguish by such names, we shall find many to be mere deductions, others, as in the solution of biquadratics, anticipated by former writers. But if we cannot allow to him the merit of so inventive a genius, we must applaud his assiduity; and, distinguished as he was in the scientific world, the purity of his life, the simplicity of his manners, and the zeal which he always manifested for the truths of the gospel, will intitle him to the respect of all who do not esteem the good qualities of the heart inferior to those of the head.

WARKWORTH, a village in Northumberland, at the mouth of the Coquet, five miles S.E. of Alnwick. It has a castle, the seat of the duke of Northumberland; and near it, on the bank of the river, is a hermitage divided into three apartments, cut out of a rock.

WA'RLIKE. *a.* (*war* and *like.*) 1. Fit for war; disposed to war (*Philips*). 2. Military; relating to war (*Milton*).

WA'RLING. *s.* (from *war.*) One often quarrelled with (*Camden*).

WA'RLOCK. WA'RLUCK. *s.* (*vardlookr*, Islandic, a charm; ƿeꞃloᵹ, Saxon, an evil spirit.) A male witch; a wizzard (*Dryden*).

WARM. *a.* (*warm*, Gothic; ƿeaꞃm, Saxon; *warm*, Dutch.) 1. Not cold, though not hot; heated to a small degree (*Milton*). 2. Zealous; ardent (*Pope*). 3. Habitually passionate; ardent; keen. 4. Violent; furious; vehement (*Dryden*). 5. Busy in action; heated with action (*Dryden*). 6. Fanciful; enthusiastic (*Locke*). 7. Vigorous; sprightly.

To WARM. *v. a.* (from the adjective.) 1. To free from cold; to heat in a gentle degree

(*Isaiah*). 2. To heat mentally; to make vehement (*Dryden*).

To WARM. *v. n.* To grow less cold (*Isaiah*).

WA'RMINGPAN. *s.* (*warm* and *pan.*) A covered brass pan for warming a bed by means of hot coals.

WARMINSTER, a town in Wiltshire, with a market on Saturday, a woollen manufacture, and a great trade in malt. It has two churches, and is seated at the source of the Willy, 22 miles N.W. of Salisbury, and 96 W. by S. of London.

WA'RMLY. *ad.* (from *warm*). 1. With gentle heat (*Milton*). 2. Eagerly; ardently.

WA'RMNESS. WARMTH. *s.* (from *warm.*) 1. Gentle heat (*Addison*). 2. Zeal; passion; fervour of mind (*Sprat*). 3. Fancifulness; enthusiasm (*Temple*).

To WARN. *v. a.* (pæꞃnian, Saxon; *waernen*, Dutch; *warna*, Swedish.) 1. To caution against any fault or danger; to give previous notice of ill (*South*). 2. To admonish of any duty to be performed, or practice or place to be avoided or forsaken (*Acts*). 3. To inform previously of good or bad (*Dryden*).

WA'RNING. *s.* (from *warn.*) 1. Caution against faults or dangers; previous notice of ill (*Wake*). 2. Previous notice: in a sense indifferent (*Duty of Man*).

WARP, in the manufactures, a name for the threads, whether of silk, wool, linen, hemp, &c. that are extended lengthwise on the weaver's loom; and across which the workman, by means of his shuttle, passes the threads of the woof, to form a cloth, riband, fustian, or the like.

WARP, a small rope employed occasionally to remove a ship from one place to another, in a port, road, or river. And hence,

To WARP, is to change the situation of a ship, by pulling her from one part of a harbour, &c. to some other, by means of warps, which are attached to buoys; to anchors sunk in the bottom; or to certain stations upon the shore, as posts, rings, trees, &c. The ship is accordingly drawn forwards to those stations, either by pulling on the warps by hand, or by the application of some purchase, as a tackle, windlass, or capstern, upon her deck. When this operation is performed by the ship's lesser anchors, these machines, together with their warps, are carried out in the boats alternately towards the place where the ship is endeavouring to arrive: so that when she is drawn up close to one anchor, the other is carried out to a competent distance before her, and being sunk, serves to fix the other warp, by which she is farther advanced.

To WARP. *v. n.* (peaꞃpan, Saxon; *werpen*, Dutch, to throw; whence we sometimes say *the work casts.*) 1. To change from the true situation of intestine motion; to change the position from one part to another (*Moxon*). 2. To lose its proper course of direction (*Shakspeare*). 3. To turn (*Milton*).

To WARP. *v. a.* 1. To contract; to shrivel. 2. To turn aside from the true direction (*Watts*). 3. It is used by *Shakspeare* to express the effect of frost.

To WA'RRANT. *v. n.* (*garantir*, French.) 1. To support or maintain; to attest (*Locke*). 2. To give authority (*Shakspeare*). 3. To justify (*South*). 4. To exempt; to privilege; to secure (*Sidney*). 5. To declare upon surety (*L'Estrange*).

WA'RRANT. *s.* (from the verb.) 1. A writ conferring some right or authority (*Clarendon*). 2. A writ giving the officer of justice the power of caption (*Dryden*). 3. A secure inviolable grant (*Hooker*). 4. A justificatory commission (*Kettle.*). 5. Attestation (*South*). 6. Right; regality: obsolete (*Shakspeare*).

WARRANT, a præcipe under hand and seal to some officer, to bring any offender before the person granting it; and warrants of commitment are issued by the privy council, a secretary of state, or justice of the peace, &c, where there has been a private information, or a witness had deposed against an offender. Wood's Inst. 614.

Any one under the degree of nobility may be arrested for a misdemeanor, or any thing done against the peace of the kingdom, by warrant from a justice of the peace; but if the person is a peer of the realm, he must be apprehended for a breach of the peace by warrant out of B. R. Dalt. Just. 263.

A constable ought not to execute a justice's warrant, where the warrant is unlawful, or the justice has no jurisdiction; if he does, he may be punished. Plowd. 394.

But if any person abuses it, by throwing it in the dirt, &c. or refuses to execute a lawful warrant, it is a contempt of the king's process, for which the offender may be indicted and fined. Crompt. 149.

A general warrant to apprehend all persons suspected, without naming or particularly describing any person in special, is illegal and void for its uncertainty; for it is the duty of the magistrate, and ought not to be left to the officer, to judge of the ground of the suspicion. Also a warrant to apprehend all persons guilty of such a crime, is no legal warrant; for the point upon which its authority rests, is a fact to be decided on a subsequent trial; namely, whether the person apprehended thereupon is guilty or not guilty. 4 Black. 291.

A warrant may be lawfully granted by any justice for treason, felony, or præmunire, or any other offence against the peace; and it seems clear, that where a statute gives any one justice a jurisdiction over any offence, or a power to require any person to do a certain thing ordained by such a statute, it impliedly gives a power to every such justice to make out a warrant to bring before him any one accused of such offence, or compelled to do any thing ordained by such statute: for it cannot but be intended, that a statute which gives a person jurisdiction over an offence, means also to give him the power incident to all courts, of compelling the party to come before him. 2 Haw. 84.

But in cases where the king is not a party, or where no corporal punishment is appointed, as in cases for servants' wages and the like, it seems that a summons is the more proper process; and for default of appearance, the justice may proceed; and so indeed it is often directed by special statutes.

A warrant from any of the justices of the court of King's Bench extends over all the kingdom, and is tested or dated England; but a warrant of a justice of peace in one county, must be backed, that is, signed, by a justice of another county, before it can be executed there. And a warrant for apprehending an English or a Scotch offender may be indorsed in the opposite kingdom, and the offender carried back to that part of the united kingdom in which the offence was committed. 4 Black. 291.

Warrant of attorney, is an authority and power given by a client to his attorney, to appear and plead for him; or to suffer judgment to pass against him by confessing the action, by nil dicit, non sum informatus, &c.

WA'RRANTABLE. *a.* (from *warrant.*) Justifiable; defensible (*South*).

WA'RRANTABLENESS. *s.* (from *warrantable.*) Justifiableness (*Sidney*).

WA'RRANTABLY. *ad.* (from *warrantable.*) Justifiably (*Wake*).

WA'RRANTER. *s.* (from *warrant.*) 1. One who gives authority. 2. One who gives security.

WARRANTI'SE. *s.* (*warrantiso*, law Latin.) Authority; security (*Shakspeare*).

WA'RRANTY. *s.* (*warrantia*, law Latin; *garantie, garant*, French.) 1. (In the common law.) A promise made in a deed by one man unto another, for himself and his heirs, to secure him and his heirs against all men, for the enjoying of any thing agreed of between them (*Cowell*). 2. Authority; justificatory mandate (*Taylor*). 3. Security (*Locke*).

To WARRA'Y. *v. a.* (from *war.*) To make war upon (*Fairfax*).

WARRE. *a.* (ƿœꞃꞃ, Saxon.) Worse: obsolete (*Spenser*).

WARREN, a name applied to a privileged place, by prescription or grant from the king, in which to keep beasts or fowls of warren. These in ancient records were said to be the hare, the coney, the pheasant, and the partridge; but the word now applies to any particular district, or tract of land, appropriated to the breeding and preservation of rabbits as private property. These become a most valuable and profitable stock; paying a much greater annual rent than can be expected from a light and sandy soil, under any other mode of cultivation. There is a distinction between a warren and free warren. The franchise next in degree to a park, is a free warren, and appertains chiefly to the privilege of killing game within its boundaries. A warren, in its general signification, implies nothing farther than a peculiar spot for the numerous production of conies, with which the neighbouring inhabitants and the markets of the metropolis are supplied; and these invariably pass under the denomination of rabbit warrens.

Warren, a town of Rhode Island, in Bristol county, which has a good trade, particularly in ship-building. It stands on Warren river and the N.E. part of Narraganset bay, ten miles S.S.E. of Providence.

WA'RRENER. *s.* (from *warren.*) The keeper of a warren.

WARRINGTON, a town in Lancashire, with a market on Wednesday, manufactures of canvas, cottons, checks, hardware, pins, and glass, and a considerable traffic in malt. Here are two churches, an excellent free-school, and a large academy for the education of youth. The number of inhabitants in 1801 was 10,567. It is seated on the Mersey, over which is a bridge, 16 miles E. of Liverpool, and 182 N.N.W. of London.

WARRIOUR. *s.* (from *war.*) A soldier; a military man.

WARSAW, a city of Poland, lately the metropolis of that country, and in the palatinate of Masovia. It is built partly in a plain, and partly on a gentle rise from the Vistula; extending, with the suburbs of Kraka and Praga, over a vast extent of ground, and containing above 66,000 inhabitants. The streets are spacious, but ill paved; the churches and public buildings large and magnificent; the palaces of the nobility numerous and splendid; but the greatest part of the houses, particularly in the suburbs, are mean and ill-constructed wooden hovels. In the beginning of 1794, the empress of Russia put a garrison into this city, in order to compel the Poles to acquiesce in the usurpations she had in view; but this garrison was soon expelled by the citizens. The king of Prussia besieged Warsaw in July, but was compelled to raise the siege in September. It was undertaken by the Russians, who, in November, took by storm the suburb of Praga, massacred the inhabitants, and nearly reduced it to ashes. The immediate consequence was the surrender of the city to the Russians, who, in 1796, delivered it up to the king of Prussia. Toward the end of 1806 the French occupied this place; and by the treaty of Tilsit, the city, and this part of Poland, was given to Saxony, to be held under the title of the duchy of Warsaw. It is 170 miles S. of Konigsberg, and 180 E.N.E. of Breslau. Lon. 21. 0 E. Lat. 52. 14. N.

WART, a small knotty kind of tumor which most frequently rises on the skin of the hands. Many ridiculous cures have been suggested for them by old women, and these have been kept in countenance by the spontaneous disappearance of warts, which frequently happens. When a remedy is thought necessary, touching them once a day with tincture of muriated iron is a very good one.

WARTED SNAKE, in amphibiology. See Acrocordus.

Warted plant. See Verucose.

WARTENBERG, a town of Silesia, capital of a lordship of the same name, with a castle. In 1742 it was entirely reduced to ashes, except the old castle, which is now used as a brewhouse. It is 28 miles N.E. of Breslau. Lon. 17. 50 E. Lat. 51. 19 N.

WARTON (Joseph, D. D.), was born either towards the end of the year 1721, or in the beginning of the year 1722. He was the eldest son of Thomas Warton, B. D. who had been fellow of Magdalen college, Oxford; poetry professor from the year 1718 to 1728; and vicar of Basingstoke in Hampshire, and of Cobham in Surrey. Where the subject of this memoir was born we have not learned, though, were we to hazard a conjecture, we would say that it was in Oxford, as his father probably resided in that city during his professorship.

Our knowledge of the private history of Dr. Warton is indeed extremely limited. We do not even know at what school, or in what college, he was educated; though it was probably at Winchester school, and certainly in some of the colleges in the university of Oxford. For many years, he was successively under and upper master of Winchester college; but resigned the last of these officers when he found the infirmities of age coming upon him; and was succeeded by Dr. Goddard, the present excellent master. He was likewise prebendary of the cathedral church of Winchester, and rector of Wickham in Hampshire, where he died, aged 78.

His publications are few, but valuable. A small collection of poems, without a name, was the first of them, and contained the Ode to Fancy, which has been so much and so deservedly admired. They were all of them afterwards printed in Dodsley's collection. He was also a considerable contributor to the Adventurer, published by Dr. Hawkesworth; and all the papers which contain criticisms on Shakspeare were written by him and his brother, Thomas Warton, the subject of the next article.

The first volume of his Essay on the Life and Writings of Pope was published, and passed through several editions, and an interval of between twenty and thirty years had elapsed before he gave a second volume of that elegant and instructive work to the world. He had not only meditated, but had collected materials for a literary history of the age of Leo X; and proposals were actually in circulation for a work of that kind; but it is probable that the duties of his station did not leave him the necessary leisure for an undertaking which required years of seclusion and independence. His last and late work, which he undertook for the booksellers at a very advanced age, was an edition of Pope's Works, that has not altogether satisfied the public expectation. He retained, with great propriety indeed, many of the notes of Warburton; but is severely reprehended by the author of the Pursuits of Literature for suppressing the name of that prelate on his title page, or including it only, as subordinate to his own, in the general expression *others*.

Warton (Thomas), poet-laureat, brother of the preceding, was born in 1728. He received the first part of his education at Winchester, and then went to Trinity college, Oxford. In 1745 he published five pastoral eclogues, in which he beautifully describes the miseries of war, to which the shepherds of Germany were exposed. But his Triumph of Isis, in answer to Mr. Mason's Isis, chiefly exalted his reputation. In 1751 he succeeded to a fellowship of his college, and in 1756 he was elected professor of poetry, which office he held for the usual term of ten years.—In 1771 he was was presented to the living of Kiddington in Oxfordshire. His History of English Poetry, the first volume of which appeared in 1774, evinces a singular combination of extraordinary talents and attainments. In 1785, upon the death of Mr. Whitehead, the appointment of poet-laureat was conferred on him, and at the same time he was elected Camden professor of ancient history. His last publication consisted of notes on Milton's smaller poems. He died rather suddenly in his college in May, 1790.

WARTWORT, in botany. See Euphorbia.

WA'RTY. *a.* (from *wart.*) Grown over with warts.

WARWICK, a borough and the capital of Warwickshire, governed by a mayor, with a market on Saturday. It was fortified with a wall, now in ruins; but has still a fine castle of the ancient earls of Warwick, inhabited by the present possessor of that title. The town was nearly destroyed by fire in 1694, and now principally consists of one regular built street, at each end of which is an ancient gate. It had formerly six monasteries and six churches; of the latter two only remain: it has likewise a handsome shirehouse, a good free-school, and a noted hospital for twelve decayed gentlemen. In 1801 the number of inhabitants was 5592. It is situate on a rocky eminence, on the river Avon, 10 miles S.S.W. of Coventry, and 90 N.W. of London. Lon. 1. 35 W. Lat. 52. 17 N.

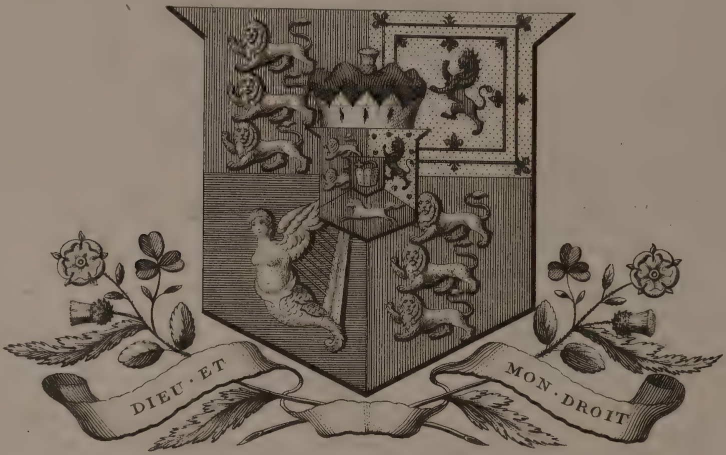
Warwick, a town of Virginia, capital of a county; seated on the right bank of James river, 15 miles S.E. of Richmond.

Warwick, a town of Maryland, in Cecil county, on the east shore of Chesapeak bay, 15 miles S.W. of Philadelphia.

Warwick, a town of Rhode Island, chief of Kent county. It has a cotton manufacture, and is situate at the head of Narraganset bay, eight miles south of Providence.

WARWICKSHIRE, a county of England, 47 miles long and 30 broad; bounded at its N. extremity by a point of Derbyshire, on the N.W. by Staffordshire, on the N.E. by Leicestershire, on the west by Worcestershire, on the east by Northamptonshire, on the S.W. by Gloucestershire, and on the S.E. by Oxfordshire. It lies partly in the diocese of Lichfield and Coventry, and partly in that of Worcester; contains four hundreds, and one liberty, one city, twelve market towns, 158 parishes, and sends six members to parliament. In 1811 the number of inhabitants was 218,893.

Arms of Great Britain and Ireland since their Union.



German Washing-Machine

Fig. 1

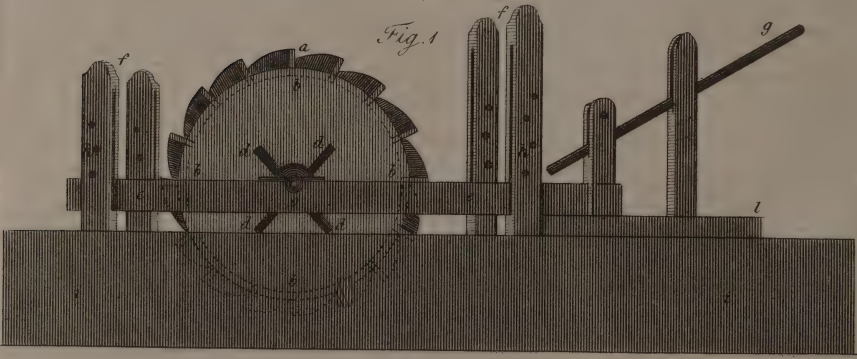
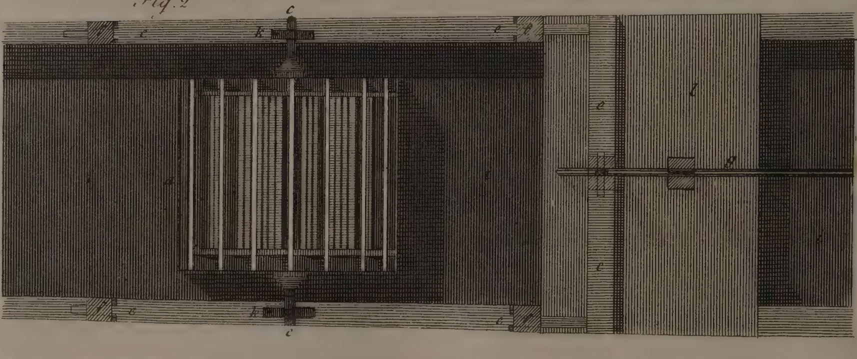


Fig. 2



Mutlow sc Russell Co.

London. Published by Sherwood & Co. Paternoster Row, June 1.1813.

The air is very mild, pleasant, and healthy. The north part, called the Woodlands, is divided from the south, called the Feldon, by the river Avon; and the soil of both is rich and fertile. It produces corn, malt, wood, wool, cheese, coal, iron, and limestone. The principal rivers are the Avon, Tame, and Arrow. The capital is Warwick, but Birmingham is the largest town.

WA'RWORN. *a.* (*war* and *worn.*) Worn with war (*Shakspeare*).

WA'RY. *a.* (pœꞃ, Saxon.) Cautious; scrupulous; timorously prudent (*Addison*).

WAS. The preterit of *To be.*

To **WASH.** *v.a.* (paꞅcan, Saxon; *wasschen*, Dutch.) 1. To cleanse by ablution (*L'Estrange*). 2. To moisten; to wet; as, the rain *washes* the flowers. 3. To affect by ablution (*Watts*). 4. To colour by washing (*Collier*).

To **WASH.** *v. n.* 1. To perform the act of ablution (*Pope*). 2. To cleanse clothes (*Shakspeare*).

WASH. *s.* (from the verb.) 1. Alluvion; any thing collected by water (*Mortimer*). 2. A bog; a marsh; a fen; a quagmire (*Shakspeare*). 3. A medical or cosmetic lotion (*Swift*). 4. A superficial stain or colour (*Collier*). 5. The feed of hogs gathered from washed dishes (*Shakspeare*). 6. The act of washing the clothes of a family; the linen washed at once.

WA'SHBALL. *s.* (*wash* and *ball.*) Ball made of soap (*Swift*).

WA'SHER. *s.* (from *wash.*) One that washes (*Shakspeare*).

WASHING MACHINE, a contrivance by means of which clothes are cleansed from dirt. The following, given by Dr. Willich, is a description of a washing machine lately invented in Germany, by M. M. Fischer and Kerzig.

(Pl. 173, fig. 1.)—*a*, is a section of the washing cylinder, with its sixteen ladles, projecting four inches; but of these ladles only four jut out internally, as represented by the dotted line at *b*, *b*, *b*, *b*.

c, the iron roller, which is on the outside, fixed to the bottom of the cylinder, by means of an iron cross at *d*, *d*, *d*, *d*, with screws or nails: it rests on the beam *e*, so as to be upheld in the four excavated columns or posts *f*, *f*, *f*, *f*, by the lever *g*, and to be either raised or lowered, and afterwards secured by the pins *h*, *h*, according to the greater or less depth of water.

i, the cistern, at the sides of which the four posts are firmly inserted.

(Fig. 2.)—A bird's-eye view of the machine. The laths between the ladles may be here distinctly seen, together with the roller, *c*, *c*, as it rests on the beam or supporter *e*, *e*, *e*, *e*, and is secured by a cap, K.

l, the boarded floor above the cistern or reservoir of water, on which the person stands, when the cylinder is to be placed higher or lower.

By means of this excellent contrivance, we understand from the inventors, by whom it was first used for cleansing the felts in an extensive paper-mill, that from fourteen to eighteen shirts may be completely washed within one hour; and that the friction is far less than in performing that operation by the hand; while the foul water is not suffered to flow back into the linen, but is continually renewed. If table-cloths, &c. happen to be greasy, they must be whirled round in the machine for the space of from 20 to 30 minutes; when it will be necessary to take them out; and, after rubbing them well with soap to expose them again to the action of the engine for half an hour, when they will be found thoroughly cleaned. Fine linen may be inclosed in a bag, and washed in a similar manner, so as to prevent it from being injured by friction. There are, however, two points which ought to be strictly attended to; namely, the agitation of the water should not be too violent; and a sufficient quantity of foul linen must be thrown in at a time, in order to amount to such weight as will cause it to descend, after having been carried to the uppermost part of the cylinder. The only obstacle to the general introduction of this machine is, that it cannot be adopted in those situations which are not provided with a current or stream of water to work it; but, wherever a brook or rivulet occurs, such apparatus will be found highly serviceable in workhouses, great schools, prisons, and hospitals, not less than in private families; as 200 shirts may be washed by one person in the space of twelve hours. It may be erected in a mill-reach, so as to be set in motion by the immediate pressure of the water; or, by connecting its mechanism with the main cylinder of the water-wheel.

WASHINGTON (George), the founder of American independence, was born 1732, in the county of Fairfax in Virginia. He was descended from an English family, which emigrated from Cheshire, about 1630, for Virginia. He was educated under a private tutor, and embraced the military profession. His abilities were first employed by Dinwiddie in 1753, in making remonstrances to the French commander on the Ohio, for the infraction of the treaty between the two nations, and he afterwards negociated with the Indians on the back settlements, and for his services was thanked by government. In the expedition of general Braddock he served as his aid-de-camp, and he displayed great talents in conducting the retreat, and in saving the army from a dangerous position. He retired with the rank of colonel, but left the peaceful employments of an agriculturist at Mount Vernon, to become senator in the national council for Frederic county, and afterwards for Fairfax. In the American war he was early selected by the leaders of the insurrection to command the provincial troops, and by his prudence, his valor, and his presence of mind, he deserved and obtained the gratitude of his country, and finally triumphed over all opposition. Distinguished by the name of American Fabius, he shewed himself master of military stratagems, and while some blamed his precautions as cowardice, he proved that he could fight whenever he calculated upon the prospect of decisive advantages or certain victory. A more rash general might have endangered the safety of his country, by facing openly the disciplined troops of England, but the sagacious general knew that cautious operations would prove more decisive than the most brilliant victory over an enemy, whose resources were supplied with difficulty from distant Europe. After seeing the independence of his country established in 1783, the heroic chief resigned his high office of commander to the congress, and in the midst of the applauses, the admiration, and the tears of his fellow citizens, he retired to a private station. With firmness he declined the honours offered to him by the gratitude of America, he defrayed all his military expences during the eight years of the war, and modestly declared himself satisfied with the recollection of his services, and the good opinion of his fellow citizens. In 1789 he was named president, for which his wisdom and moderation so fully qualified him. It was a period of difficulty; the unsubdued spirit of liberty in America was again kindled into a flame by the revolution of France, and not a few of the Americans sighed at home for that equality which seemed to promise more extensive happiness to the renovated subjects of Lewis XVI. Washington anticipated the plans of the factious, the prudence of his administration checked insurrection, discontent was silenced, and the people, whom the intrigues of the French envoy roused to rebellion, were convinced of the wildness of their measures, and of the wisdom of their governor. The president completed in 1796 the business of his office by signing a commercial treaty with Great Britain, and then resigned at a moment when all hearts and all hands were united again to confer upon him the sovereignty of the country. Restored to Mount Vernon, he devoted himself to the cultivation of his lands, and though he accepted the command of the army in 1798, it was more to unite together his fellow citizens to one general point, the good of the country, than to gratify ambition or pride. He expired at his seat rather unexpectedly, after a few days illness, 14th Dec. 1799. He was buried with national honours. America, in a public mourning, deplored in him the loss of her father and her friend, and a new city was erected on the borders of the Potomac, which, in becoming the capital of the United States, records to distant times, by bearing his name, the patriotism and the glories of her illustrious founder. Wisdom, says a contemporary writer, was the predominant feature in the character of Washington. His patience, his forbearance, his firmness, in adverse as well as in prosperous events, proved of more solid advantage to his country than his bravery and talents. Though, perhaps, inferior to other great characters in the extent of his ideas, and the boldness of his plans, he surpassed them far in wisdom, in moderation, in integrity. The history of his life is the history of American independence, and though there may be men who decry his services, while they forget his disinterested resignation of sovereign authority, it is much to be feared that many generations shall not elapse, before some equally fortunate but more ambitious chief may boldly seize the reins of absolute dominion, and establish an usurped power over the liberties of his enslaved country. A copious account of his life has been published by judge Marshall in five large vols. 8vo.; and an interesting collection of his official letters to congress during the American war, by Dr. Carey, in 2 vols. 8vo.

Washington, the name of several counties in the United States of America: namely, in Rhode Island, in New York, in Pennsylvania, in Maryland, in Virginia, in Tenassee, in North Carolina, in South Carolina, and in Georgia. These, and several towns of the same name, take their denomination from the illustrious general Washington, who was elected the first president of the United States in 1788.

Washington, a commercial town of the United States, in North Carolina, seated on the river Tar, 38 miles N. by E. of Newbern. Lon. 77. 3 E. Lat. 34. 40 N.

Washington, a town in the state of Georgia, in the county of Wilkes. A mile and a half from this town is a medicinal spring which has been found very beneficial in rheumatic cases: it rises from a hollow tree, the inside of which is covered with a coat of nitre, an inch thick; and the leaves around the spring are incrusted with a substance as white as snow. It is 50 miles N.W. of Augusta. Lon. 82. 30 W. Lat. 33. 12 N.

Washington, a city of N. America, now the metropolis of the United States. It is seated at the junction of the rivers Potomac and the Eastern Branch, extending about four miles up each, including a tract of territory scarcely to be exceeded in point of convenience, salubrity, and beauty, by any in the world. This territory, called Columbia, lies partly in Virginia and partly in Maryland, and was ceded by these two states to the United States of America, and by them established to be the seat of government, after the year 1800. The plan combines convenience, regularity, elegance of prospect, a free circulation of air, and every thing grand and beautiful that can be introduced into a city. It is divided into squares or grand divisions, by streets running due N. and S., and E. and W.; which form the groundwork of the plan. But, from the capitol, the president's house, and some of the important areas in the city, run diagonal streets, from one material object to another, which not only produce a variety of charming prospects, but remove the insipid sameness which renders some great cities unpleasing. The great leading streets are all 160 feet wide, including a pavement of 10 feet, and a gravel walk of 30 feet planted with trees on each side, which will leave 80 feet of paved street for carriages. The rest of the streets are, in general, 110 feet wide, with a few only 90 feet, except North, South, and East Capitol Streets, which are 160 feet. The diagonal streets are named after the respective states composing the Union, while those running N. and S. are, from the capitol eastward, named East First Street, East Second Street, &c. and those W. of it are, in the same manner, called West First Street, West Second Street, &c. Those running E. and W. are from the capitol northward named North A Street, North B Street, &c. and those S. of it are called South A Street, South B Street, &c. The squares, or divisions of the city, amount to 1150: the rectangular ones contain from three to six acres, and are divided into lots of from 40 to 80 feet in front, and their depth from 110 to 300, according to the size of the square. The irregular divisions produced by the diagonal streets are some of them small, but generally in valuable situations: their acute points are all to be cut off at 40 feet, so that no house will have an acute corner. All the houses must be of brick or stone. The area for the capitol (or house for the legislative bodies) is on the most beautiful eminence in the city, about a mile from the Eastern Branch, and not much more from the Potomac, commanding a full view of the city, as well as a considerable extent of the country round. The president's house is on a rising ground, not far from the Potomac, possessing a delightful water prospect, with a view of the capitol, and some other material parts of the city. Due S. from the president's house, and due W. from the capitol, run two great pleasure parks or malls, which intersect and terminate upon the banks of the Potomac, and are to be ornamented at the sides by a variety of elegant buildings, houses for foreign ministers, &c. Interspersed through the city, where the most material streets cross each other, are a variety of open areas, formed in various regular figures, which, in great cities, are extremely useful and ornamental. The best of these areas are to be appropriated to the different states composing the union; not only to bear their respective names, but as proper places to erect statues, obelisks, or columns, to the memory of their celebrated men. Upon a small eminence, where a line due W. from the capitol, and due S. from the president's house, would intersect, is to be erected an equestrian statue of general Washington, the first president of the United States. Proper places are marked out for other public buildings; as a marine hospital, with its gardens; a general exchange, and its public walks; a fort, magazines, and arsenal; a city hall, churches, colleges, market-houses, theatre, &c. The president of the United States, in locating the seat of the city, prevailed upon the proprietors of the soil to cede a certain portion of the lots of every situation, to be sold by his direction, and the proceeds to be applied solely to the public buildings. This grant will produce about 15,000 lots, and will be sufficient, not only to erect the public buildings, but to dig a canal, to conduct water through the city, and to pave and light the streets. The city being situate on the great post road, equidistant from the N. and S. extremities of the Union, and nearly so from the Atlantic ocean to the river Ohio, upon the best navigation, and in the midst of the richest commercial territory in America, is by far the most eligible situation for the residence of the congress. The Eastern Branch is one of the safest and most commodious harbours in America, being sufficiently deep for the largest ships for four miles above its junction with the Potomac; while the channel lies close along the edge of the city, and is abundantly capacious. The Potomac produces a communication by water between the city and the interior parts of Virginia and Maryland, by means of the Shannandoah, the South Branch, Opecan, Cape Capon, Patterson Creek, Conoochegue, and Monocasy, for upward of 200 miles, through one of the most healthy regions in America, producing tobacco of superior quality, hemp, maize, wheat, and other small grain, with fruits and vegetables in abundance. The lands upon the Potomac, above the city of Washington, all around it, and for sixty miles below, are high and dry, abounding with innumerable springs of excellent water, and well covered with timber-trees of various kinds. A few miles below the city, upon the banks of the Potomac, are inexhaustible mountains of excellent freestone, of which the public edifices in the city are building. Above the city also, upon the banks of the river, are immense quantities of excellent coal, limestone, and marble, with blue slate of the best quality. The Tyber, which is the principal stream that passes through the city, is to be collected in a grand reservoir near the capitol, whence it will be carried in pipes to different parts of the city; while its surplus water will fall down in cascades, through the public gardens W. of the capitol, into a canal. The plan of this city was formed by major L'Enfant; and the founding of it in such an eligible situation, upon such a liberal and elegant plan, will, by future generations, be considered as a high proof of the wisdom of the first president of the United States, while its name will keep fresh in mind the obligations they are under to that illustrious character. Since 1792, many workmen have been employed, and every exertion is making to complete the plan. In 1800, after the adjournment of congress, at their last session in Philadelphia, the public offices, records, and property were removed to this city; and here, on the 22d of November, the congress assembled for the first time. In 1804, a society of agriculture was incorporated here. Washington is 144 miles S.W. of Philadelphia, the late capital of the United States. Lon. 77. 0 W. Lat. 38. 57 N.

WA'SHPOT. *s.* (*wash* and *pot.*) A vessel in which any thing is washed (*Cowley*).

WA'SHY. *a.* (from *wash.*) 1. Watery; damp (*Milton*). 2. Weak; not solid (*Wotton*).

WASP, in entomology. See VESPA.

Wasp (Tailed), in entomology. See Sirex.

WA'SPISH. *a.* (from *wasp.*) Peevish; malignant; irritable; irascible (*Stillingfleet*).

WA'SPISHLY. *ad.* Peevishly.

WA'SPISHNESS. *s.* (from *waspish.*) Peevishness; irritability.

WA'SSAIL. *s.* (from ƿæꞅhœl, your health, Saxon.) 1. A liquor made of apples, sugar, and ale, anciently much used by English good fellows. 2. A drunken bout (*Shakspeare*). 3. A merry song (*Ainsworth*).

WA'SSAILER. *s.* (from *wassail.*) A toper; a drunkard (*Milton*).

WAST. The second person of *was*, from *To be.*

To **WASTE.** *v. a.* (aƿeꞅꞇan, Saxon; *woesten*, Dutch; *guastare*, Italian; *vastare*, Lat.) 1. To diminish (*Temple*). 2. To destroy wantonly and luxuriously; to squander (*Hooker*). 3. To destroy; to desolate (*Dryden*). 4. To wear out (*Milton*). 5. To spend; to consume (*Milton*).

To **Waste.** *v. n.* To dwindle; to be in a state of consumption (*Dryden*).

Waste. *a.* (from the verb.) 1. Destroyed; ruined (*Prior*). 2. Desolate; uncultivated (*Abbot*). 3. Superfluous; exuberant; lost for want of occupiers (*Milton*). 4. Worthless; that of which none but vile uses can be made: as, *waste* wood. 5. That of which no account is taken, or value found (*Dryden*).

Waste. *s.* (from the verb.) 1. Wanton or luxurious destruction; the act of squandering (*Watts*). 2. Consumption; loss (*Ray*). 3. Useless expence (*Watts*). 4. Desolate or uncultivated ground (*Locke*). 5. Ground, place, or space unoccupied (*Waller*). 6. Region ruined and deserted (*Dryden*). 7. Mischief; destruction (*Shakspeare*). 8. (A law term.) Destruction of wood or other products of land (*Shadwell*).

WA'STEFUL. *a.* (*waste* and *full.*) 1. Destructive; ruinous (*Milton*). 2. Wantonly or dissolutely consumptive (*Bacon*). 3. Lavish; prodigal; luxuriantly liberal (*Addison*). 4. Desolate; uncultivated; unoccupied (*Spenser*).

WA'STEFULLY. *ad.* (from *wasteful.*) With vain and dissolute consumption (*Dryd.*).

WA'STEFULNESS. *s.* (from *wasteful.*) Prodigality.

WA'STENESS. *s.* (from *waste.*) Desolation; solitude (*Spenser*).

WA'STER. *s.* (from *waste.*) One that consumes dissolutely and extravagantly; a squanderer; vain consumer (*Ben Jonson*).

WA'STREL. *s.* (from *waste.*) Common (*Carew*).

WATCH. *s.* (ƿæcce, Saxon.) 1. Forbearance of sleep. 2. Attendance without sleep (*Addison*). 3. Attention; close observation (*Shakspeare*). 4. Guard; vigilant keep (*Sp.*). 5. Watchmen; men set to guard (*Milton*). 6. Place where a guard is set (*Shakspeare*). 7. Post or office of a watchman (*Shakspeare*). 8. A period of the night (*Dryden*). 9. A pocket clock; a small clock moved by a spring (*Hale*).

To **Watch.** *v. n.* (ƿacian, Saxon.) 1. Not to sleep; to wake (*Shakspeare*). 2. To keep guard (*Milton*). 3. To look with expectation (*Psalms*). 4. To be attentive; to be vigilant (*Timothy*). 5. To be cautiously observant (*Taylor*). 6. To be insidiously attentive.

To **Watch.** *v. a.* 1. To guard; to have in keep (*Milton*). 2. To observe in ambush (*Walton*). 3. To tend (*Broome*). 4. To observe, in order to detect or prevent.

Watch, in mechanics, is a small portable movement or machine for the measuring of time, having its motion regulated by a spiral spring. Watches, strictly taken, are all such movements as show the parts of time; as clocks are such as publish it by striking on a bell, &c. But, commonly, the name watch is appropriated to such as are carried in the pocket, and clock to the large movements, whether they strike or not. See Chronometer, Clock, Horology, Scapement, &c.

The several members of the watch part are, 1. The balance, consisting of the rim, which is its circular part; and the verge, which is its spindle, to which belong the two pallets, or levers, that play in the teeth of the crown-wheel. 2. The potence, or pottance, which is the strong stud in pocket watches whereon the lower pivot of the verge plays, and in the middle of which one pivot of the balance-wheel plays; the bottom of the potence is called the foot, the middle part the nose, and the upper part the shoulder. 3. The cock, which is the piece covering the balance. 4. The regulator, or pendulum spring, which is the small spring in new pocket watches, underneath the balance. 5. The pendulum, whose parts are the verge, pallets, cocks, and the bob. 6. The wheels, which are the crown-wheel in pocket pieces, and swing-wheel in pendulums, serving to drive the balance or pendulum. 7. The contrate-wheel, which is that next the crown-wheel, &c. and whose teeth and hoop lie contrary to those of other wheels; whence the name. 8. The great, or first wheel, which is that the fusee, &c. immediately drives: after which are the second wheel, third wheel, &c. 9. Lastly, between the frame and dial-plate is the pinion of report, which is that fixed on the arbor of the great wheel, and serves to drive the dial-wheel as that serves to carry the hand.

Plate 174 represents the parts of a watch the proper size: fig. 1 is a plan of the wheel work, the upper plate (fig. 2) being removed to expose them; fig. 2 is the upper plate, the cock, F, (fig. 5) being taken away to show the balance; fig. 3, the wheel work beneath the dial; fig. 4, a detached part; fig. 5, a general elevation of the whole, being supposed to be set out at length to show the whole at one view; fig. 6, the great wheel; fig. 7, the under side of the fusee; fig. 8, the main-spring, barrel, &c.

The essential difference between a clock and a watch consists in two particulars: first, it is moved by a spring in lieu of a weight; and, secondly, its motion is governed by a balance instead of a pendulum. The balance is a small wheel, *n*, (fig. 2 and 5, Plate 174)

WATCH.

PL. 174.

Fig. 1.

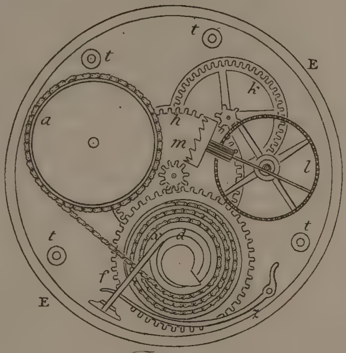


Fig. 2.

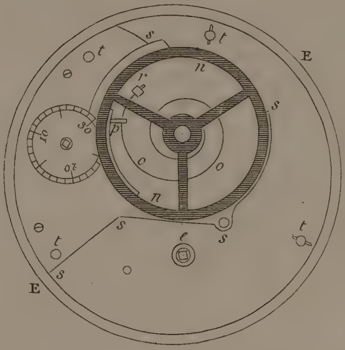


Fig. 3.

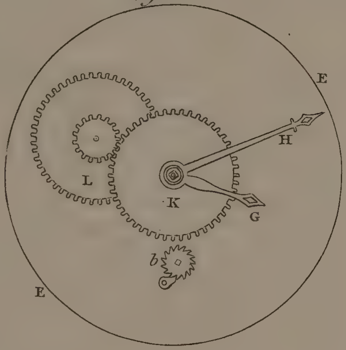


Fig. 4.

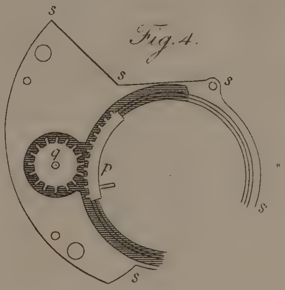


Fig. 5.

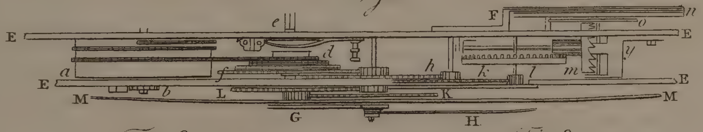


Fig. 6.

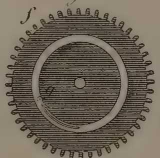


Fig. 7.

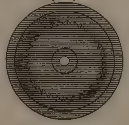
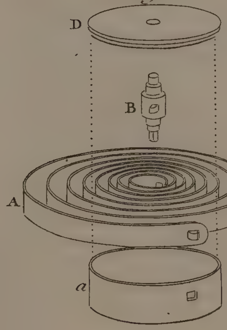


Fig. 8.



Mutlow, sc. Ruſsell Cot.

London, Published by Sherwood & Co. Paternoster Row, June 1, 1813.

fixed on an arbor, or axis, called the verge, and turning freely upon pivots at the ends of the arbor. To the axis of the balance the inner end of a very elastic spiral spring, *o*, called the pendulum spring, is fastened, and the outer end of the spiral is made fast to some fixture, *r*: in this state the balance will have a position of rest, which will be when the spiral spring *o* is in that position which it would assume when detached from the balance, and perfectly at liberty: now, if the balance is turned round on its pivots by any external force in either direction, it will wind up or unwind the spiral spring, which will (when the external force is removed) return the balance to its state of rest; and as this is done with considerable velocity, the momentum the balance acquires by its motion will carry it beyond the point of rest on the other side; this again alters the spring, which returns the balance, throwing it beyond the point of rest; and in this manner the balance will vibrate until the friction of the pivots, and the resistance of the air, destroys the original impulse. All vibrations of such a balance which pass through equal spaces will be performed in equal times.

This simple apparatus is all which is required for measuring time, the other mechanism of the watch being devoted to two objects: first, to give a small impulse to the balance at each vibration, to overcome the friction and resistance of the air, and cause the balance to describe equal arcs: and, secondly, to register the number of vibrations the balance has made.

The first of these objects requires a power which shall be in constant readiness to act upon the balance. This is accomplished by the re-action of a spiral steel spring, A, (fig. 8) which, when at rest and liberty, assumes that position and size: it is coiled up closer, and put into a brass box, *a*, called the spring barrel; a small hook which is at the outer end of the spring being put through a hole in the side of the box, a small arbor, B, is put into the centre of the box, and the cover or lid of the box, D, is shut in: the arbor has a hook projecting from it, which enters a hole in the inner end of the spring A; its pivots project through the barrel at each side, and enter holes in the two plates E E, (fig. 5) which forms the frame of the watch; the lower pivot passes through the plate, and has a small rachet wheel, *b*, (fig. 3 and 5) fixed upon it, a click entering the teeth thereof prevents the arbor turning round; a small steel chain is hooked to the spring-barrel, *a*, (fig. 1 and 5); at one end it passes round the barrel several times, then round the fusee, *d*, and is hooked to it by its end. The fusee, *d*, is a conical piece of brass, with a spiral groove cut thereon to receive the chain: it is mounted on pivots which turn in holes, in the two plates E E, and one of the pivots, *e*, projects a considerable distance, and is cut square. Now if a key is applied to this square, and the fusee, *d*, by that means turned round so as to wind the chain upon it, the spring barrel will be turned round, and the outer end of the spring, A, being hooked to the barrel, will be turned round also; as the inner end is immoveable, by being fixed to the arbor, B, the spring will be coiled up into a closer spiral than it was when at liberty, and will consequently exert a re-action upon the chain, and by that means upon the fusee, which will be turned round thereby when the key is removed. To prevent too much chain being wound upon the fusee, and by that means breaking the chain, or overstraining the spring, a contrivance, called a guard, is added: it is a small lever, *x*, (fig. 1) moving on a stud fixed to the upper plate of the watch, and pressed downwards by a small spring, *z*: as the chain is wound upon the fusee, it rises in the spiral groove, and lifts up the lever, *x*, until it touches the upper plate; it is then in a position to intercept the edge of the spiral piece of metal seen on the top of the fusee, and thus stop it from being wound up any further.

The power of the spring is transmitted to the balance by means of several cog wheels: the first, *f*, is upon the fusee; it is shown separated from the fusee in fig. 6, having a hole through the centre to receive the arbor of the fusee, and a projecting ring upon its surface; the under surface of the fusee is shown in fig. 7, having a circular groove cut in it to receive the corresponding ring upon the great wheel, fig. 6; the inner edge of the groove is cut with teeth to form a rachet wheel; when the wheel and fusee are put together, a small click, *g*, (fig. 6) takes into the teeth of the rachet: as the fusee is turned by the key, to wind up the watch, this click slips over the sloping sides of the teeth without turning the great wheel; but when the fusee is turned the other way by the chain, the click catches the teeth of the rachet wheel, and causes the cog wheel to turn with the fusee; the great wheel, *f*, has forty-eight teeth, and turns a pinion of twelve teeth on an arbor in the centre of the watch, which carries the minute hand: a wheel, *h*, of fifty-four teeth, called the centre wheel, is fixed upon this arbor, and turns a pinion on the same arbor with the third wheel, *k*, of forty-eight teeth, which turns the pinion of the contrate wheel, *l*, of forty-eight teeth; the contrate wheel gives motion to a pinion of six teeth, and to the balance wheel, *m*, which has fifteen large teeth, which stop against two small pallets upon the arbor of the balance, or verge, *r*: these pallets are two small teeth, projecting from the verge at right angles to each other; one engages the upper side of the wheel, and the other takes the lower. By the action of the main-spring, *a*, the wheels are all turned, and the balance wheel, *m*, if there was no obstruction, would turn with great velocity until all the chain was wound off the fusee; but one of the pallets of the verge is always engaged with one of the teeth of the wheel, suppose one of the teeth on the lower side; now, by the balance turning round to make a vibration, the pallet allows the tooth to slip off, and the wheel begins to run down by the action of the main-spring, marking the vibrations by moving the hands G H; it is, however, stopped immediately by the next tooth at the top of the wheel meeting the upper pallet of the verge: the balance and pallet was at that time just beginning to return, and the top of the wheel moving in contrary direction to the bottom, the tooth presses against the pallet, and assists the balance to maintain the same arc in its vibration: when the balance is about to return, the upper tooth of the wheel slips off the pallet, and the lower one catches on the lower pallet, and assists the balance as before: one of the pivots of the balance-wheel works in a small frame, *y*, called the pottance; the lower pivot of the verge works in the bottom of it also, and the upper pivot turns in a cock, F, screwed to the plate E, and covering the balance to defend it from injury.

The hands, G H, are moved by the central arbor which projects through the lower plate, E, (fig. 5) and receives a pinion of twelve teeth fixed on the end of a tube which fits tight upon the arbor, but will slip round easily to set the hands when the watch is wrong: the other end of the tube is square, and receives the minute hand, H, which points out the minutes on a circle of sixty upon the dial-plate M M; the pinion on the tube turns a wheel, L, of forty-eight (seen in plans in fig. 3) on whose arbor is a wheel of sixteen, turning another wheel, K, of forty-eight, the arbor of which is a tube fitting on the other tube, and has the hour hand, G, fixed upon it: by this arrangement the minute hand, H, turns round twelve times for one revolution of the hour hand, G.

As the time the balance takes to perform a vibration depends upon the arc it passes through, the least increase of force in the main-spring would alter the rate of the watch; therefore the fusee is cut into a spiral, diminishing from top to bottom, as the spring draws the chain with greater force when wound up than when it is more released. The chain acts upon a shorter lever when the spring is wound up, and upon a longer when it is down, so as to regulate the unequal action of the spring to a perfectly regular force upon the wheel work.

As it will most probably happen that a watch will not always keep the same time, it is necessary to have an adjustment that may cause it to move faster or slower: this can be done by two ways, either by increasing or diminishing the force of the main-spring, *a*, which increases or diminishes the arc the balance describes; or it may be done by strengthening or weakening the pendulum spring, *o o*, which will cause the balance to move quicker or slower. The first is done by turning the rachet wheel, *b*, (fig. 5 and 3) on the end of the arbor of the main-spring, thereby winding up or letting down the spring without turning the fusee; but as this is a very coarse adjustment, it is never used but by the maker, and recourse is had to the pendulum spring, *o*, (fig. 2) which is fixed to a stud, *r*, upon the plate E, by one end, and the verge of the balance by the other: *p* is a small piece of metal, called the curb, having a notch in it to receive the spring: the acting part of the spring is from *p* to the centre; and as the curb, *p*, is moveable, the acting length can be altered: the curb is cut into teeth, and turned by a pinion, *q*, (fig. 4) which represents the piece, *s s s s s*, detached from the plate E, and turned up: the pinion, *q*, has a small dial, divided into thirty, fixed to its arbor on the upper side of the plate, *s s*, by which it can be set so as to regulate the watch to the utmost nicety: *t t t t* (fig. 1) are four pillars by which the two plates, E E, of the watch are held together; and *t t t t* (fig. 2) represent the heads of the same pillars coming through the upper plate, and small pins put through to keep the plate down. (*BritishEnc.*)

Mr. Elliot, of Clerkenwell, a few years ago, invented a very simple repeating watch, in which the motion is performed with comparatively few parts. Thus he is enabled to reduce the price of good repeaters so low as eight guineas, or to add the repeating work to another watch for three.

The method by which this repeater is so much simplified, is by the use of a single part, so contrived as to perform the operations of several; this is, a flat ring, or centreless wheel, of nearly the same diameter as the watch, supported in its place, so as to admit of circular motion, by four grooved pulleys placed round its external circumference, in the same manner as the part in common clocks which denotes the moon's age. This part is put in motion by turning the pendant, whose extremity is formed into a small vertical wheel, which works in teeth cut on the external part of the flat ring for almost a third of its circumference. The lower part of the ring contains the pins, at right angles to its face, which lift the hammers for striking the hours and quarters; the internal part of the ring contains indentations of regularly increasing depths, which, receiving the tails of the levers, whose other extremities are pressed by their springs against the hour-snail and the quarter-snail, is by them prevented from moving beyond a certain degree proper for the time: after the pendant is turned, the ring is brought back to its first position, by a box-spring, round which a fine chain is coiled, whose extremity is connected with the inner part of the ring.

By turning the pendant to the left the hour is struck, and by turning it to the right the quarters are repeated; and the returning spring just mentioned is made to operate in both directions, by its chain passing between two little pulleys, which on either side convert the direction of the chain to the line of traction of the spring.

Hence, it is evident this single flat ring performs all the following operations:

1. It receives the motion for striking the hour from the pendant.
2. — The same for striking the quarters.
3. It carries the pins, or teeth, which lift the hour-hammer.
4. — The same for the quarter-hammer.

5. It contains the indentations by which the hour-snail operates on it by its lever.
6. — The same, by which the quarter-snail operates on it.
7. It carries the part that recoils the movement which tells the hour, to its first position.
8. It carries the part, for the same purpose, for the quarter-movement.
9. It contains a cavity, which moves over a fixed pin, that prevents the pendant from turning it too far.

In this ring, the same parts, in three instances, are made to perform double operations, by which simplicity of construction is advanced, apparently to its greatest extent.

Watch-glasses, in a ship, are glasses employed to measure the period of the watch, or to divide it into any number of equal parts, as hours, half-hours, &c. so that the several stations therein may be regularly kept and relieved, as at the helm, pump, look-out, &c.

WA'TCHER. *s.* (from *watch.*) 1. One who sits up; one who does not go to sleep (*Shakspeare*). 2. Diligent overlooker or observer (*More*).

WATCHET, a town in Somersetshire, with a market on Saturday, seated on the Bristol channel, at the mouth of a good harbour, much frequented by coal ships, which are freighted hence with limestone, alabaster, and kelp. It is fourteen miles N.W. of Bridgewater, and 153 W. by S. of London. Lon. 3. 25 W. Lat. 51. 12 N.

Wa'tchet. *a.* (ƿæceꝺ, Saxon.) Blue; pale blue (*Dryden*).

WA'TCHFUL. *a.* (*watch* and *full.*) Vigilant; attentive; cautious; nicely observant (*Shakspeare*).

WA'TCHFULLY. *ad.* Vigilantly; cautiously; attentively; with cautious observation; heedfully (*Boyle*).

WA'TCHFULNESS. *s.* (from *watchful.*) 1. Vigilance; heed; suspicious attention; cautious regard; diligent observation (*Watts*). 2. Inability to sleep (*Arbuthnot*).

WA'TCHHOUSE. *s.* (*watch* and *house.*) Place where the watch is set (*Gay*).

WA'TCHING. *s.* (from *watch.*) Inability to sleep (*Wiseman*).

WA'TCHMAKER. *s.* (*watch* and *maker.*) One whose trade is to make watches, or pocket clocks (*Moxon*).

WA'TCHMAN. *s.* (*watch* and *man.*) Guard; sentinel; one set to keep ward (*Taylor*).

WA'TCHTOWER. *s.* (*watch* and *tower.*) Tower on which a sentinel was placed for the sake of prospect (*Donne*).

WA'TCHWORD. *s.* (*watch* and *word.*) The word given to the sentinels to know their friends (*Sandys*).

WATEEOO, an island in the Pacific ocean, discovered by captain Cook. It is six leagues in circuit, composed of hills and plains, and the surface covered with verdure. The soil, in some parts, is light and sandy; but further up the country, a reddish cast was seen on the rising grounds, where the islanders build their houses, which are long and spacious. The manners of the people, their general habits of life, and their method of treating strangers, greatly resemble those of Otaheite, and its neighbouring islands. There is also a great similarity between their religious opinions and ceremonies. Lon. 158. 15 W. Lat. 21. 1 S.

WATER. (*aqua.*) A transparent fluid, without colour, smell, or taste; in every degree compressible; when pure, not liable to spontaneous change; liquid in the common temperature of our atmosphere, assuming a solid form at 32° Fahrenheit, and a gasseous at 212°, but returning unaltered to its liquid state on resuming any degree of heat between these points; capable of dissolving a greater number of natural bodies than any other fluid whatever, and especially those known by the name of the saline; performing the most important functions in the vegetable and animal kingdoms, and entering largely into their composition as a constituent part.

Water is found throughout the earth, not only in the uncombined states of ice, liquidity, or steam, but permanently united to a vast number of bodies, both solid, fluid, and gasseous. For instance, the common air of the atmosphere and water are mutually soluble in each other; all natural waters containing air, and even that air which is apparently the dryest, holding a portion of water in true solution. Again, many solid minerals and all crystallized neutral salts contain water in their composition, some of the latter to full half their weight; and by all these combinations water, in changing its form, loses many of its distinguishing properties.

Chemists have long been occupied in the important consideration, whether water be a simple elementary substance; and two or three totally different controversies have succeeded each other on this question. It was long since observed, even by Hippocrates, that all natural waters contain air, which is separable from them by heat or by freezing, and that, under particular circumstances, they all deposit a portion of earth. These events constantly occurring with every natural water as it springs from the soil, several ingenious men have imagined that earth and air were necessary constituent parts of perfect water, and have attempted to allot to each of them their peculiar share in producing the various appearances of this fluid, and its effect on the human body: so Hoffman observes, that "water is composed of watery moisture, or water, properly so called, of a fluid expansive ether, and of earthy and saline particles." Assuming this composition as true, he goes on to assign the particular properties of each ingredient: "the etherial part is the cause of the superior lightness, briskness, intestine motion, and exemption from putrefaction; the watery part, which is by far the greatest in quantity, is composed of very subtile and mobile particles, which insinuate into, and penetrate every substance capable of solution; whilst the earthy and saline matter is fixed, and will not rise in distillation. Hence too the quality of different waters must, according to this opinion, depend on the proportion of each ingredient. The most salubrious waters are those which contain most of the etherial particles, and are lighter than the others. They also heat and cool the soonest (heat being only the friction of the highly mobile etherial parts upon each other), and hence the best waters, when shaken, shew numerous bubbles, like pearls, on the sides of the glass, and yield much etherial spirit under the air pump. When more highly etherial, they become acidulous, as the Seltzer and Pyrmont waters, and can with difficulty be restrained in bottles, and therefore are much more salubrious when drank at the fountain head. Hence these waters do not cool the body like common water, but increase the appetite and quicken the circulation. This ether is the universal spirit, the soul, as it were, of minerals. From the abundance of the aqueous parts, the integrity of the body is preserved, the vital juices attenuated, the extreme vessels cleansed, and the morbid saline parts carried of by the excretories."

These ideas, selected from various passages in this celebrated German writer, will give the reader some notion of the prevalent opinions at the time; and shew that considerable attention was paid to the gasseous bodies with which various waters are impregnated, but which were then thought to be too subtile for chemical examination, and were rather considered as essential parts of every water in the state of the highest perfection, increasing its general salubrity as a common drink, as well as adding important medical powers. We shall presently, however, show the great acquisition to our knowledge on these subjects which modern chemistry has made, in distinguishing accurately the gasseous, earthy and saline parts, from the purely aqueous, and explaining their nature and formation. The supposed conversion of water into earth, effected by the process of distillation often repeated, and independent of the acknowledged earthy residue of all natural waters, was another opinion much controverted at that time, which was apparently supported by very strong facts, and employed the skill, attention, and especially the patience, of many of the ablest chemists. A most exaggerated account of the quality of earth produced by distilling simple water a number of times successively, having been given to the world, supported by the great authority of Boyle, other chemists made various experiments to ascertain the truth of this report. The most accurate and important in support of this opinion are those of the eminent Berlin chemist, Margraaff; he found that water, though purified by repeated distillations, if evaporated to dryness, always left a small earthy residuum. This amounted, after seventy-two distillations, to ten grains. But as the earth thus obtained was mostly siliceous, and was produced in greater quantity by violent boiling, than by gentle heat, though the same quantity and kind of water in both cases was operated on, it was suspected that the production of earth was entirely owing to the abrasion of the glass vessels in which the distillation was carried on. Accordingly, Lavoisier repeated the experiment with this view, and by weighing the vessel before and after the process, he found a loss of weight fully equal to that of the earth produced; and this explanation is now generally acquiesced in, and has long put an end to the controversy.

Water had hardly been reestablished on the list of elementary substances, before the important question of its decomposition, according to the opinion of modern chemisty, began to be agitated. It would be foreign from our present purpose to give any history of this interesting question, and the gradual advances which this opinion has made to an almost universal establishment among chemists of every country. Water is, according to this opinion, a compound fluid, made up of two substances, neither of which can be exhibited separately, except in the gasseous form; and when aeriform, they are known, the one as hydrogen gass, or inflammable air; the other as oxygen gass, or vital air. These gasses in the proportion of about three of hydrogen to eleven of oxygen, when united chemically, and reduced from the form of an air, to that of a liquid, constitute the fluid, water.

It is to be observed, however, that this circumstance of the composition of water has very little concern with the chemical knowledge of mineral waters. None of the methods of examining these waters appear in any notable degree to reduce simple water to its original elements, but only to separate from it the foreign contents of every description, to which it combines, while flowing under the surface of the earth; no process of obtaining the adventitious gasses of natural waters seem to decompose any part of this fluid, but, in all chemical enquiries connected with the analysis of mineral springs, the aqueous principle may be generally considered as acting merely as water, at least in the present state of our chemical knowledge. The principal facts, to the explanation of which the decomposition of water has materially assisted, are various circumstances in the solution and oxydation of metallic bodies; several of the most important changes that take place in the vegetable kingdom, such as that of their giving out oxygen gass in sunshine; the formation of oils, resins, and other inflammable bodies during their growth; the conversion of sugar into ardent spirit during fermentation; and the ultimate analysis by the process of spontaneous putrefaction. It still remains for chemistry to determine whether the decomposition of water perform any material part in the changes that are going on in the living animal. It is certainly by no means an improbable conjecture, since the materials of animal bodies are such as are peculiarly liable to change, and especially as the process of animal putrefaction is supposed to be principally brought about by the decomposition of water assisted by a moderate temperature, and therefore the same materials, under the same circumstances of heat, may possibly undergo somewhat of a similar decomposition even during animal life. As this subject, however, is entirely confined to the regions of conjecture, and not connected with our present enquiries, we shall take no farther notice of the ultimate decomposition of water.

Of all the classes of natural bodies there are none, into which water enters so largely as a constituent part, as those of the vegetable and animal kingdoms. These are peculiarly distinguished, in a chemical view, from the mineral kingdom, by possessing a structure remarkably liable to decomposition, and in which the quiescent affinities are never so adjusted, that the constituent parts of their bodies can, for a moment, during life, remain at rest without forming new compounds. Most minerals will continue for ages unaltered, when protected from external chemical agents; but an animal or vegetable is at no two periods precisely the same. This restlessness of composition is owing to two circumstances; the one, that of possessing materials highly liable to change; the other, the perpetual internal motion and reaction of parts produced by their peculiar organization. This organization, which is more or less complex in different parts and various classes, consists in all of a system of cylindrical vessels generally ramifying into minute branches, and of a fluid which is constantly circulating within these vessels. Then, as all the solids are formed by decomposition from the circulating fluids, and, when rendered unfit for performing their functions, or noxious to the body, are removed, by means of the fluids, it is necessary that the latter should be capable of holding in solution, or at least suspending, all the materials of which the solids are composed. This, therefore, leads to one important property in water, that of being the basis of all the fluids that are perpetually circulating through every tube of every organized and living animal or vegetable.

It would be a most valuable discovery if we were able to ascertain the precise degree of solubility of the various materials of the circulating fluid in the water which holds them suspended, and the extent to which simple chemical affinities would act independently of the circumstance of life, which appears to produce regular and important changes in a manner, and according to laws, to the explanation of which natural philosophy is inadequate. Something, however, of the chemical constitution of the fluids of the animal body we are already acquainted with, and these facts illustrate the high importance of the aqueous fluid, and the large share which it supplies of all the circulating juices. Thus we know, that the blood is a very compound liquid, consisting of animal gluten or the coagulum; of red globules, the nature of which we are but little acquainted with; of animal albumen, which is separable from the serum by heat; of a number of salts of the muriatic and phosphoric kinds; but lastly and chiefly, of a very large quantity of water, which enables the other contents to assume the fluid state, and to circulate freely through very minute canals. This quantity varies at different times, but, on an average, is estimated by Haller at nearly three-fourths, or as 90 to 128, or sometimes 103 to 128. Not only the quantity of the respective contents varies, but probably the state of the ingredients and the circumstances of solution. So it is found that the proportion of coagulum is greater in the robust high-fed persons than in the weakly and ill-fed, and greater in general in the warm than in the cold-blooded animals. The proportional quantity of salts has not been so well ascertained, attention having been rather paid to their sensible or supposed qualities, such as those of acrimony, alcalescency, and the like.

The circumstances of solution deserve some notice in a chemical point of view. Of the contents of the blood, some, such as gelly and saline matter, are easily soluble in water; others, such as albumen and gluten, probably with much more difficulty; and the latter is rather suspended than truly dissolved, as it coagulates when at rest even in the body, as Mr. Hewson has observed, and without diminution of temperature or exposure to air. This property the same ingenious physiologist found to be retarded by the violent action of circulation, and thus satisfactorily explained the buffy coat on inflamed blood which had been erroneously imputed to inspissation from a loss of the watery parts.

Water is that part of the blood which appears to be the least animalized whilst performing the round of circulation, the loss of which seems to be the easier to bear, and to admit of the readiest supply; but as there is an ample provision in the excretions for carrying off whatever portion of this fluid is superfluous, we may reasonably suppose that there is little danger, in health at least, of an excess in this most innocent of all the ingesta.

The two most abundant excretions are the perspiration and urine, and in these the aqueous ingredient predominates still more than in the circulating mass. Insensible perspiration consists largely of pure water, with a very minute quantity of salt, and still less of animal matter, so little indeed, as only to be detected by the smell. The liquor that moistens the cavities of the body is nearly of the same nature. The animal matter appears to increase when the perspiration becomes violent and sensible, and the odour proportionally stronger, and often of a very peculiar kind. The obvious uses of this copious excretion seem to be, not only to remove a superabundance of water from the system, but especially, by carrying it off in a gaseous form, to constitute the great cooling process, and thus keep in proper check the production of heat by the lungs. In the copious excretion of urine, the proportion of water, though less than in the former case, is still very great. It is calculated by Haller at about $\frac{16}{20}$ to $\frac{48}{50}$, and it appears to have regular variations according to the previous diet, the time which this secretion requires in forming, and the frequency of discharging. Our chemical knowledge of the other ingredients is still very imperfect, but they seem to be more various and peculiar than those of any other natural secretion. No other, likewise, shews such a total diseased change in chemical composition, as that which occurs during saccharine diabetes.

On the whole, it is probable that the purely chemical properties, which water exercises when forming a constituent part of the animal fluids, may depend on the proportion it bears to the other ingredients, or the degree of temperature and force of action to which the whole has been exposed, which will increase or diminish the true solvent power of this liquid, and possibly too on the order in which the other contents have been presented to it. This last circumstance has been but little attended to by physiologists, and yet, as we must suppose that the laws of chemical affinity are not entirely superseded by the living powers, it is certainly probable that the order of solution of the different contents of the common animal fluid may, in some degree, affect the respective proportion of the substances dissolved.

It is not only in the animal, and still more in the vegetable fluids, that water appears the most abundant ingredient, but even the solids of both these natural productions are found, when disorganized, to have been composed most largely of aqueous fluid, but altered in its texture and deprived of its property of fluidity by the union of a very small portion of other matter, assisted by the gradual process of growth and evolution from an organized body. The experiments of Van Helmont, Tillet, and others, have abundantly proved, that by far the greater part of the nutrition of vegetables is the water which they absorb from the earth through the pores of their roots, and that, by submitting them to distillation, they are again resolvable, for the most part, in water. Some plants contain much more of this fluid than others; and in general all young plants more than those that are advanced in growth. The solid wood of trees is indeed composed of a considerable quantity of carbonaceous, earthy, and saline matter, and this is increasing with age; but even the driest and most compact wood, such as the heart of oak, when converted into charcoal, loses during the process full three-fourths of its weight, which is almost entirely pure water. The willow and other aquatic trees, though their wood exhibits a pretty firm texture, contain only about a fourteenth part of their weight of solid matter, all the rest being resolvable into water. Grass loses, in drying into hay, about two-thirds of its weight; and even the driest hay, if submitted to distillation, yields two-thirds of its weight of pure water. As the animal solids are all formed out of vegetable matter, directly or indirectly, we might conclude *a priori* that the aqueous fluid, the principal component part of vegetables, would also enter largely into the composition of animal substance, and this is found to be the case by actual experiment.

It appears to be a distinguishing mark of organic matter, that in it a vast proportion of mere water is capable of being so intimately united with other substances as to lose that fluidity which, in its uncombined state, it assumes at a temperature above the freezing point, and of giving that peculiar elasticity, flexibility, and cohesion, which are so necessary to a body that is to possess the powers of locomotion, or at least to be furnished with a system of vessels in which a constant re-action of parts and perpetual internal movements are going on, without destroying that juxtaposition which is necessary to an organic structure. A mineral, a simple saline body, or, in short, any substance that is not an immediate constituent part of an animal or vegetable, is scarcely ever susceptible of any intermediate state between the solid and the fluid texture produced by an union with any proportion of liquid menstruum; a crystal of Glauber's salt, for instance, though it contain half its weight of water, is neither flexible nor elastic; and if heated, passes immediately into the state of solution, owing to the increased solvent power of its water of crystallization; but the glutinous part of wheat flower, though dry and pulverulent, no sooner comes into contact with water, than it absorbs a part, becomes thereby highly ductile and tenacious, and even refuses to unite with an additional quantity of the same fluid, except by the assistance of a degree of heat, which entirely alters its original properties. If, therefore, we consider water, either as the principal solvent for all the alimentary matter which the animal body perpetually receives from without, or as the basis of all the secretions and excretions that perform particular functions, or as a large constituent part of the solids of every denomination; if we survey its agency as diffused though every tube of the complicated system of an organized body, or condensed into firm or flexible fibres; we shall have no hesitation in allowing it a high place among those important but simple materials, out of which is formed the curious and interesting structure of every animated being.

There is a great variety of waters employed in the preparation of food, in manufactures, and domestic purposes, where the object is to use a simple pure water; and all the foreign matter which the liquid may contain is considered as detrimental, or, at best, useless. Some notice of these is requisite, on account of the abundant daily use which we make of them; and the various substances which they contain should be noticed, as they here constitute mere impurities, some of which are innocent, others prejudicial; some may be got rid of by simple methods, others can only be removed by chemical processes, which can seldom be adopted for common use. As the standard of perfectly pure water, we must have recourse to that which is artificially purified by distillation; for every natural water contains some foreign ingredients; and the excellence of these waters is directly in proportion as it approaches in properties to that which is distilled.

1. *Distilled Water.*—This is the lightest of all others, containing neither solid nor gaseous substances in solution, is perfectly void of taste and smell, colourless, and beautifully transparent, has a soft feel, and wets the fingers more readily than any other. It mixes uniformly with soap into a smooth opaline mixture, but may be added to a solution of soap in spirit of wine without injuring its transparency. The clearness of distilled water is not impaired by the most delicate chemical re-agents, such as lime-water, a solution of barytes in any acid, nitrated silver, or acid of sugar. When evaporated in a silver vessel it leaves no residuum; if preserved from access of foreign matter floating in the air, it may be kept for ages unaltered in vessels upon which it has no action, as it does not possess within itself the power of decomposition. As it freezes exactly at 32° of Fahrenheit, and boils at 212° under the atmospherical pressure of 29.8° inches, these points are made use of as the standard ones for their mometrical division; and its specific weight being always the same under light pressure and temperature, it is employed for the comparative standard of specific gravity.

Pure distilled water can only be procured from water which contains no volatile matters that will rise in distillation, and continue still in union with the vapour when condensed. Many substances are volatile during distillation, but most of the gasses, such as common air, carbonic acid, and the like, are incapable of uniting with water at a high temperature: other bodies, however, such as vegetable essential oil, and in general, much of that which gives the peculiar odour to vegetable and animal matter, will remain in water after distillation. So the steam of many animal and vegetable decoctions has a certain flavour which distinguishes it from pure water; and the aqueous exhalation from living bodies, which is a kind of distillation, has a similar impregnation.

To obtain distilled water perfectly pure, much stress was laid by former chemists on repeating the process a great number of times; but it was found by Lavoisier, that rain water once distilled, rejecting the first and last products, was as pure a water as could be procured by any subsequent distillations.

Distilled water appears to possess a higher power than any other as a solvent of all animal and vegetable matter, and these it holds in solution as little as possible altered from the state in which they existed in the body that yielded them. Hence the great practical utility of that kind of chemical analysis which presents the proximate constituent parts of these bodies, and which is effected particularly by the assistance of pure water. On the other hand, a saline, earthy, or otherwise impure water, will alter the texture of some of the parts, impair their solubility, produce material changes on the colouring matter, and become a less accurate analyser on account of the admixture of foreign contents.

Distilled water is seldom employed to any extent in the preparation of food, or in manufactures, on account of the trouble of procuring it in large quantities; but for preparing a great number of medicines, and in almost every one of the nicer chemical processes, that are carried on in the liquid way, this water is an essential requisite. The only cases in which it has been used largely as an article of drink have been in those important trials made of the practicability of procuring it by condensing the steam of sea water by means of a simple apparatus adapted to a ship's boiler; and these have fully shewn the ease with which a large quantity of fresh water of the purest kind may be had at sea, at a moderate expence; whereby one of the most distressing of all wants may be relieved. There are one or two circumstances which seem to shew that water, when not already loaded with foreign matter, may become a solvent for concretions in urinary passages. At least, we know that very material advantage has been derived in these cases from very pure natural springs, and hence a course of distilled water has been recommended as a fair subject of experiment.

2. *Rain Water*, is the next in purity to distilled water, is that which has undergone a natural distillation from the earth, and is condensed in the form of rain. This is a water so nearly approaching to absolute purity as probably to be equal to distilled water for every purpose except in the nicer chemical experiments. The foreign contents of rain water appear to vary according to the state of the air through which it falls. The heterogeneous atmosphere of a smoky town will give some impregnation to rain as it passes through, and this, though it may not be at once perceptible on chemical examination, will yet render it liable to spontaneous change; and hence, rain water, if long kept, especially in hot climates, acquires a strong smell, becomes full of animalcules, and in some degree putrid. According to Margraaff, the constant foreign contents of rain water appear to be some traces of the muriatic and nitric acids; but as this water is always very soft, it is admirably adapted for dissolving soap, or for the solution of alimentary or colouring matter, and it is accordingly used largely for these purposes. The specific gravity of rain water is so nearly the same as that of distilled water, that it requires the most delicate instruments to ascertain the difference. Rain, that falls in towns, acquires a small quantity of sulphat of lime and calcareous matter from the mortar and plaister of the houses.

3. *Ice* and *Snow Water*.—This equals rain water in purity, and, when fresh melted, contains no air, which is expelled during freezing. In cold climates and in high latitudes, thawed snow forms the constant drink of the inhabitants during winter; and the vast masses of ice which float on the polar seas afford an abundant supply to the mariner. It is well known, that in a weak brine, exposed to a moderate freezing cold, it is only the watery part that congeals, leaving the unfrozen liquor proportionably stronger of the salt. The same happens with a dilute solution of vegetable acids, with fermented liquors, and the like; and advantage is taken of this property to reduce the saline part to a more concentrated form. Snow water has long lain under the imputation of occasioning those strumous swellings in the neck which deform the inhabitants of many of the Alpine valleys; but this opinion is not supported by any well-authenticated, indisputable facts, and is rendered still more improbable, if not entirely overturned, by the frequency of the disease in Sumatra, where ice and snow are never seen, and its being quite unknown in Chili and in Thibet, though the rivers of these countries are chiefly supplied by the melting of the snow, with which the mountains are covered.

4. *Spring Water*.—Under this comprehensive class are included all waters that spring from some depth beneath the soil, and are used at the fountain head, or at least before they have run any considerable distance exposed to the air. It is obvious that spring water will be as various in its contents as the substances that compose the soil through which it flows. When the ingredients are not such as to give any peculiar medical or sensible properties, and the water is used for common purposes, it is distinguished as a hard or soft spring, sweet or brackish, clear or turbid, and the like. Ordinary springs insensibly pass into mineral springs, as their foreign contents become more notable and uncommon; though sometimes waters have acquired great medical reputation for mere purity.

By far the greater number of springs are cold; but as they take their origin at some depth from the surface, and below the influence of the external atmosphere, their temperature is, in general, pretty uniform during every vicissitude of season, and always several degrees higher than the freezing point. Others, again, arise constantly hot, or with a temperature always exceeding the summer heat; and the warmth possessed by the water is entirely independent of that of the atmosphere, and varies little winter or summer.

One of the principal inconveniencies in almost every spring water is its hardness, owing to the presence of earthy salts, which, in by far the greater number of cases, are only the insipid substances, chalk and selenite, which do not impair the taste of the water; whilst the air which it contains, and its grateful coolness, render it a most agreeable, and generally a perfectly innocent, drink; though sometimes, in weak stomachs, it is apt to occasion an uneasy sense of weight in that organ, followed by a degree of dyspepsy. The quantity of earthy salts varies considerably; but, in general, it appears that the proportion of five grains of these in the pint will constitute a hard water, unfit for washing with soap, and for many other purposes of household use or manufactures. The water of deep wells is always, *ceteris paribus*, much harder than that of springs which overflow their channel; for much agitation and exposure to air produce a gradual deposition of the calcareous earth; and hence spring water often incrusts to a considerable thickness the inside of any kind of tube through which it flows, as it arises from the earth. The specific gravity of these waters is also, in general, greater than that of any other kind of water, that of the sea excepted. Springs that overflow their channel, and form to themselves a limited bed, pass insensibly into the state of stream, or river water, and become thereby altered in some of their chemical properties.

5. *River Water.*—This is in general much softer and more free from earthy salts than the last, but contains less air of any kind; for, by the agitation of a long current, and in most cases, a great increase of temperature, it loses common air and carbonic acids, and with this last, much of the lime which it held in solution. The specific gravity thereby becomes less, the taste not so harsh, but less fresh and agreeable, and out of a hard spring is often made a stream of sufficient purity for most of the purposes where a soft water is required. Some streams, however, that arise from a clean siliceous rock, and flow in a sandy or stony bed, are from the outset remarkably pure. Such are the mountain lakes and rivulets in the rocky districts of Wales, the source of the beautiful waters of the Dee, and numberless other rivers that flow through the hollow of every valley. Switzerland has long been celebrated for the purity and excellence of its waters, which pour in copious streams from the mountains; and give rise to some of the finest rivers in Europe. An excellent observer and naturalist, the illustrious Haller, thus speaks of the Swiss waters, "vulgaribus aquis Helvetia super omnes fere Europæ regiones excellit. Nusquam liquidas illas aquas & crystalli simillimas se mihi obtulisse memini postquam ex Helvetia excessi. Ex scopulis enim nostræ per puros silices percolatæ nulla terra vitiantur." Some of them never freeze in the severest winter, the cause of which is probably, as Haller conjectures, that they spring at once out of a subterraneous reservoir, so deep as to be out of the reach of frost, and during their short course when exposed to day they have not time to be cooled down from 53°, their original temperature, to below the freezing point.

Some river waters, however, that do not take their rise from a rocky soil, and are indeed at first considerably charged with foreign matter, during a long course, even over a rich cultivated plain, become remarkably pure as to saline contents, but often fouled with mud, and vegetable or animal exuviæ, which are rather suspended than held in true solution. Such is that of the Thames, which, taken up at London at low water, is a very soft and good water, and, after rest and filtration, it holds but a very small portion of any thing that could prove noxious or impede any manufacture. It is also excellently fitted for sea store; but it here undergoes a remarkable spontaneous change. No water carried to sea becomes putrid sooner than that of the Thames. When a cask is opened after being kept a month or two, a quantity of inflammable air escapes, and the water is so black and offensive as scarcely to be borne. Upon racking it off, however, into large earthen vessels (oil jars are commonly used for the purpose), and exposing it to the air, it gradually deposits a quantity of black slimy mud, becomes clear as crystal, and remarkably sweet and palatable. The Seine has as high a reputation in France, and appears from accurate experiments to be a river of great purity. It might be expected that a river which has passed by a large town, and received all its impurities, and been used by numerous dyers, tanners, hatters, and the like, that crowd to its banks for the convenience of plenty of water, should thereby acquire such a foulness as to be very perceptible to chemical examination at a considerable distance below the town; but it appears from the most accurate examination, that where the stream is at all considerable, these kinds of impurity have but little influence in permanently altering the quality of the water, especially as they are for the most part only suspended and not truly dissolved; and, therefore, mere rest, and especially filtration, will restore the water to its original purity. Probably, therefore, the most accurate chemist would find it difficult to distinguish water taken up at London, from that procured at Hampton Court, after each has been purified by simple filtration. See River.

6. *Stagnated Waters.*—The waters that present the greatest impurities to the senses are those of stagnant pools and low marshy countries. They are filled with the remains of animal and vegetable matter undergoing decomposition, and, during that process, becoming in part soluble in water, thereby affording a rich nutriment to the succession of living plants and insects which is supplying the place of those that perish. From the want of sufficient agitation in these waters, vegetation goes on undisturbed, and the surface becomes covered with converva and other aquatic plants; and as these standing waters are in general shallow, they receive the full influence of the sun, which further promotes all the changes that are going on within them. The taste is generally vapid, and destitute of that freshness and agreeable coolness which distinguish spring water. However, it should be remarked, that stagnant waters are generally soft, and many of the impurities are only suspended, and therefore separable by filtration; and perhaps the unpalatableness of this drink has caused it to be in worse credit than it deserves, on the source of salubrity. The decidedly noxious effects produced by the air of marshes and stagnant pools have been often supposed to extend to the internal use of these waters; and often, especially in hot climates, a residence near these places has been as much condemned on one account as on the other, and, in like manner, as improvement in health has been as much attributed to a change of water as of air.

Water-brash. See Pyrosis.

Water-cress. See Nasturtium aquaticum, and Sisymbrium.

Water-dock. See Hydrolapathum.

Water-flag (Yellow). See Iris palustris.

Water-germander. See Scordium.

Water-hemp. See Eupatorium and Bidens.

Water-lily (White). See Nymphæa alba.

Water-lily (Yellow). See Nymphæa lutea.

Water-melon. See Cucurbita.

Water-parsnip. See Sium.

Water-zizania. A reed-like plant, zizania aquatica of Linnéus, which grows in the swampy parts of Jamaica and Virginia. The Indians are exceedingly fond of its grain, and account it more delicious than rice.

Waters (Mineral). See Mineral waters.

Water-flea, in entomology. See Gyrinus.

Water-ouzel, in ornithology. See Sturnus.

Water-scorpion, in entomology See Nepa.

To **Wa'ter.** *v. a.* (from the noun.) 1. To irrigate; to supply with moisture (*Temple*). 2. To supply with water for drink (*Knolles*). 3. To fertilize or accommodate with streams (*Addison*). 4. To diversify as with waves (*Locke*).

To **Wa'ter.** *v. n.* 1. To shed moisture (*South*). 2. To get or take in water; to be used in supplying water (*Knolles*). 3. *The mouth* Waters. The man longs; there is a vehement desire (*Camden*).

WA'TERCOLOURS. *s.* Painters make colours into a soft consistence with water; those they call *watercolours* (*Boyle*).

WA'TERCRESSES. *s.* (*sisymbrium*, Latin.) A plant (*Miller*).

WA'TERER. *s.* (from *water*). One who waters (*Carew*).

WA'TERFALL. *s.* (*water* and *fall.*) Cataract; cascade (*Raleigh*).

WA'TERFLAG. *s.* (*iris aquatica*, Latin.) Water flower-de-luce.

WATERFORD, a city and seaport of Ireland, in a county of the same name, with a bishop's see. It is the second place in the kingdom, and is a wealthy, populous city, enjoying many ample privileges. The streets are narrow, and the air is not very healthy; but it has an excellent harbour, seated as well for trade as any in the world, and ships of the greatest burden may ride at the quay. It stands on the river Sure, eight miles N. of St. George's Channel, twenty-six south of Kilkenny, and seventy-five S. by W. of Dublin. Lon. 6. 54 W. Lat. 52. 18 N.

Waterford, a county of Ireland, forty-six miles in length, and twenty-five in breadth: bounded on the south by St. George's Channel; on the west by Cork; on the north by the river Sure, which separates it from Tipperary and Kilkenny; and on the east by Waterford Haven, which parts it from Wexford. It contains seventy-one parishes. It is a fine country, very pleasant and rich, and the principal place is of the same name.

WA'TERFOWL. *s.* Fowl that live or get their food in water (*Hale*).

WA'TERGRUEL. *s.* (*water* and *gruel.*) Food made with oatmeal boiled in water (*Arbuthnot*).

WA'TERHEN. *s.* (*fulica*, Latin.) A coot; a waterfowl.

WA'TERINESS. *s.* (from *watery.*) Humidity; moisture (*Arbuthnot*).

WATERING-POT, in helminthology. See Serpula.

WA'TERISH. *a.* (from *water.*) 1. Resembling water (*Dryden*). 2. Moist; boggy (*Hale*).

WA'TERISHNESS. *s.* (from *waterish.*) Thinness; resemblance of water (*Floyer*).

WATERLAND (Dr. Daniel), a learned English divine, who distinguished himself greatly in theological controversies, especially on the subject of the Trinity, was born in 1683 at Wailsby, in Lincolnshire, of which place his father was rector. He had his academical learning at Magdalen college, Cambridge, where he drew up a useful tract, which went through several editions, entitled, Advice to a Young Student, with a Method of Study for the first four Years. In 1713 he became master of the college, was soon after appointed chaplain to George I. and in 1720 preached the first course of lectures founded by lady Moyer in defence of our Lord's divinity. He went through several promotions: and at the time of his death in 1740 was canon of Windsor, archdeacon of Middlesex, and vicar of Twickenham. Besides his controversial writings, he published two volumes of sermons.

WA'TERMAN. *s.* (*water* and *man.*) A ferryman; a boatman (*Addison*).

WA'TERMARK. *s.* (*water* and *mark.*) The utmost limit of the rise of the flood (*Dryden*).

WA'TERMILL. *s.* Mill turned by water. Watermills are of different kinds, overshot or undershot: and they are constructed for various purposes, as for flour-mills, oil-mills, paper-mills, &c. See the respective words.

WATER-SPOUT, an extraordinary meteor, or appearance, consisting of a moving column or pillar of water; called by the Latins *typho*, and *sipho*; and by the French *trompe*, from its shape, which resembles a speaking trumpet, the widest end uppermost.

Its first appearance is in form of a deep cloud, the upper part of which is white, and the lower black. From the lower part of this cloud there hangs, or rather falls down, what is properly called the spout, in manner of a conical tube, largest at top. Under this tube is always a great boiling and flying up of the water of the sea, as in a jet d'eau. For some yards above the surface of the sea the water stands as a column, or pillar; from the extremity of which it spreads, and goes off, as in a kind of smoke. Frequently the cone descends so low as to the middle of this column, and continues for some time contiguous to it; though sometimes it only points to it at some distance, either in a perpendicular or in an oblique line.

Frequently it can scarcely be distinguished whether the cone or the column appear the first, both appearing all of a sudden against each other. But sometimes the water boils up from the sea to a great height, without any appearance of a spout pointing to it, either perpendicularly or obliquely. Indeed, generally, the boiling or flying up of the water has the priority, this always preceding its being formed into a column. For the most part the cone does not appear hollow till towards the end, when the sea water is violently thrown up along its middle, as smoke up a chimney: soon after this, the spout or canal breaks and disappears; the boiling up of the water, and even the pillar, continuing to the last, and for some time afterwards; sometimes till the spout form itself again, and appear anew, which it will do several times in a quarter of an hour. See a description of several water-spouts by Mr. Gordon, and by Dr. Stuart, in Phil. Trans. Abr. vol. iv. pa. 103, &c.

M. de la Pryme, from a near observation of two or three spouts in Yorkshire, described in the Philosophical Transactions, num. 281, or Abr. vol. iv. pa. 106, concludes, that the water-spout is nothing but a gyration of clouds by contrary winds meeting in a point, or centre; and there, where the greatest condensation and gravitation is, falling down into a pipe, or great tube, somewhat like Archimedes's spiral screw; and, in its working and whirling motion, absorbing and raising the water, in the same manner as the spiral screw does; and thus destroying ships, &c.

Thus, June the 21st, he observed the clouds mightily agitated above, and driven together; upon which they became very black, and were hurried round; whence proceeded a most audible whirling noise like that usually heard in a mill. Soon after there issued a long tube, or spout, from the centre of the congregated clouds, in which he observed a spiral motion, like that of a screw, by which the water was raised up.

Again, August 15, 1687, the wind blowing at the same time out of the several quarters, created a great vortex and whirling among the clouds, the centre of which every now and then dropt down, in shape of a long thin black pipe, in which he could distinctly behold a motion like that of a screw, continually drawing upwards, and screwing up, as it were, wherever it touched.

In its progress it moved slowly over a grove of trees, which bent under it like wands, in a circular motion. Proceeding, it tore off the thatch from a barn, bent a huge oak tree, broke one of its greatest limbs, and threw it to a great distance. He adds, that whereas it is commonly said, the water works and rises in a column, before the tube comes to touch it, this is doubtless a mistake, owing to the fineness and transparency of the tubes, which do most certainly touch the surface of the sea, before any considerable motion can be raised in it; but which do not become opaque and visible, till after they have imbibed a considerable quantity of water.

The dissolution of water-spouts he ascribes to the great quantity of water they have glutted: which, by its weight, impeding their motion, upon which their force, and even existence depends, they break, and let go their contents; which used to prove fatal to whatever is found underneath.

A notable instance of this may be seen in the Philosophical Transactions (num. 363, or Abr. vol. iv. pa. 108) related by Dr. Richardson. A spout, in 1718, breaking on Emmotmoor, nigh Coln, in Lancashire, the country was immediately overflowed; a brook, in a few minutes, rose six feet perpendicularly high; and the ground upon which the spout fell, which was 66 feet over, was torn up to the very rock, which was no less than 7 feet deep; and a deep gulf was made for above half a mile, the earth being raised in vast heaps on each side. See a description and figure of a water-spout, with an attempt to account for it, in Franklin's Exp. and Obs. pa. 226, &c.

Signor Beccaria has taken pains to show that water-spouts have an electrical origin. To make this more evident, he first describes the circumstances attending their appearance, which are the following.

They generally appear in calm weather. The sea seems to boil, and to send up a smoke under them, rising in a hill towards the spout. At the same time, persons who have been near them have heard a rumbling noise. The form of a water-spout is that of a speaking trumpet, the wider end being in the clouds, and the narrower end towards the sea.

The size is various, even in the same spout. The colour is sometimes inclining to white, and sometimes to black. Their position is sometimes perpendicular to the sea, sometimes oblique; and sometimes the spout itself is in the form of a curve. Their continuance is very various, some disappearing as soon as formed, and some continuing a considerable time. One that he had heard of continued a whole hour. But they often vanish, and presently appear again in the same place. The very same things that water-spouts are at sea are some kinds of whirlwinds and hurricanes by land. They have been known to tear up trees, to throw down buildings, and make caverns in the earth; and in all these cases, to scatter earths, bricks, stones, timber, &c. to a great distance in every direction. Great quantities of water have been left, or raised by them, so as to make a kind of deluge; and they have always been attended by a prodigious rumbling noise.

That these phenomena depend upon electricity cannot but appear very probable from the nature of several of them; but the conjecture is made more probable from the following additional circumstances. They generally appear in months peculiarly subject to thunder-storms, and are commonly preceded, accompanied, or followed by lightning, rain, or hail, the previous state of the air being similar. Whitish or yellowish flashes of light have sometimes been seen moving with prodigious swiftness about them. And lastly, the manner in which they terminate exactly resembles what might be expected from the prolongation of one of the uniform protuberances of electrified clouds, mentioned before, towards the sea; the water and the cloud mutually attracting one another: for they suddenly contract themselves, and disperse almost at once; the cloud rising, and the water of the sea under it falling to its level. But the most remarkable circumstance, and the most favourable to the supposition of their depending on electricity, is, that they have been dispersed by presenting to them sharp-pointed knives or swords. This, at least, is the constant practice of mariners, in many parts of the world, where these water-spouts abound, and he was assured by several of them, that the method has often been undoubtedly effectual.

The analogy between the phenomena of water-spouts and electricity, he says, may be made visible by hanging a drop of water to a wire communicating with the prime conductor, and placing a vessel of water under it. In these circumstances, the drop assumes all the various appearances of a water-spout, both in its rise, form, and manner of disappearing. Nothing is wanting but the smoke, which may require a great force of electricity to become visible.

Mr. Wilcke also considers the water-spout as a kind of great electrical cone, raised between the cloud strongly electrified, and the sea or the earth, and he relates a very remarkable appearance which occurred to himself, and which strongly confirms his supposition. On the 20th of July 1758, at three o'clock in the afternoon, he observed a great quantity of dust rising from the ground, and covering a field, and part of the town in which he then was. There was no wind, and the dust moved gently towards the east, where appeared a great black cloud, which, when it was near its zenith, electrified his apparatus positively, and to as great a degree as ever he had observed it to be done by natural elecricity. This cloud passed his zenith, and went gradually towards the west, the dust then following it, and continuing to rise higher and higher till it composed a thick pillar, in the form of a sugar-loaf, and at length seemed to be in contact with the cloud. At some distance from this, there came, in the same path, another great cloud, together with a long stream of smaller clouds, moving faster than the preceding. These clouds electrified his apparatus negatively, and when they came near the positive cloud, a flash of lightning was seen to dart through the cloud of dust, the positive cloud, the large negative cloud, and as far as the eye could distinguish, the whole train of smaller negative clouds which followed it. Upon this, the negative clouds spread very much, and dissolved in rain, and the air was presently clear of all the dust. The whole appearance lasted not above half an hour. See Priestley's Electr. vol. i. pa. 438, &c.

This theory of water-spouts has been farther confirmed by the account which Mr. Forster gives of one of them, in his Voyage round the World, vol. i. pa. 121, &c. On the coast of New Zealand he had an opportunity of seeing several, one of which he has particularly described. The water, he says, in a space of fifty or sixty fathoms, moved towards the centre, and there rising into vapour, by the force of the whirling motion, ascended in a spiral form towards the clouds. Directly over the whirlpool, or agitated spot in the sea, a cloud gradually tapered into a long slender tube, which seemed to descend to meet the rising spiral, and soon united with it into a straight column of a cylindrical form. The water was whirled upwards with the greatest violence in a spiral, and appeared to leave a hollow space in the centre; so that the water seemed to form a hollow tube, instead of a solid column; and that this was the case was rendered still more probable by the colour, which was exactly like that of a hollow glass tube. After some time, this last column was incurvated, and broke like the others; and the appearance of a flash of lightning which attended its disjunction, as well as the hailstones which fell at the time, seemed plainly to indicate, that water-spouts either owe their formation to the electric matter, or, at least, that they have some connexion with it.

WA'TERWORK. *s.* (*water* and *work.*) A play of fountains; artificial spouts of water; any hydraulic performance. See HYDRAULICS, &c.

WA'TERY. *a.* (from *water.*) 1. Thin; liquid; like water (*Arbuthnot*). 2. Tasteless; insipid; vapid; spiritless (*Shakspeare*). 3. Wet; abounding with water (*Prior*). 4. Relating to the water (*Dryden*). 3. Consisting of water (*Milton*).

WATFORD, a town in Hertfordshire, with a great corn-market on Tuesday. It is seated on the river Coln, seven miles S. by W. of St. Alban's, and 14 N.W. of London. Lon. 0. 17 W. Lat. 51. 41 N.

WATLINGTON, a town in Oxfordshire, with a market on Saturday. It is seated on the Chiltern Hills, on a brook, which, with the continued ridge, divides the county from Buckinghamshire. It is 14 miles S.E. of Oxford, and 46 W. of London. Lon. 1. 0 W. Lat. 51. 37 N.

WATTON, a town in Norfolk, with a market on Wednesday, 18 miles S.W. of Norwich, and 90 N.N.E. of London. Lon. 0. 53 E. Lat. 52. 36 N.

To WA'TTLE. *v. a.* (paꞇelaꞅ, Saxon, *twigs.*) To bind with twigs; to form by platting twigs one within another (*Milton*).

WATTLES, the gills hanging from below or the under beak of a cock: these are taken from a stag (young game cock) at the same time with his comb, as soon as they are sufficiently grown for the operation, which is performed before they are turned down to a master walk. The little finger is insinuated into the throat of the cock, which being properly distended, the wattles are cut off close all round with the scissars; and, lastly, the comb; the whole being slightly washed with a little weak salt and water.

WATTS (Dr. Isaac), a very learned and eminent dissenting minister, was born at Southampton in 1674, of parents eminent for piety, and considerable sufferers for conscience-sake. In 1690 he was sent up to London for academical education under the tuition of the reverend Mr. Thomas Rowe; and in 1696 was himself engaged as tutor to the son of sir John Hartopp, baronet, at Stoke Newington. He began to preach in 1698, and met with general acceptance; and after officiating for three years as an assistant to the reverend Dr. Isaac Chauncy, he succeeded in his pastoral charge in 1702, and continued to preside over that church as long as he lived; though he was often interrupted in the discharge of his ministerial functions by long and painful indispositions. His constitution indeed was very weak; but such were the strength of his mind, the regularity of his habits, and such his solicitude to be useful, that he produced many learned, pious, and valuable works. At thirty-nine years of age he became acquainted with sir Thomas Abney, in whose family he found an asylum for thirty-eight years, and where he died 1748, aged seventy-five. He had been in 1728 honoured in a very flattering manner by the universities of Edinburgh and Aberdeen, with the degree of D.D.

His works are very numerous, and most of them very valuable. After his death they were collected and published in six vols. 4to.; and about twelve years ago, a new edition of them was published at Leeds in seven octavo volumes. A small volume, containing nine of his posthumous sermons, has been recently published by Dr. J. Pye Smith, of Homerton.

We need not here specify all his works; but we cannot forbear to mention as very excellent in their respective kinds, his Divine Songs for Children; Psalms and Hymns; Lyric Poems; Logic; Improvement of the Mind; Miscellaneous Thoughts, Remnants of Time improved; Guide to Prayer; Treatise on the Passions; Ontology, Orthodoxy and Charity united; Sermons on Death and Heaven; Sermons on the World to come, &c.

Watts is deservedly ranked amongst the highest class of English theological writers. His doctrinal views were what are usually termed "moderately orthodox." He held firmly those peculiar doctrines of the Gospel which indicate Christianity to be a remedial system: and such was his extreme desire to do good, that, as Dr. Johnson remarks, "whatever he took in hand was, by his incessant solicitude for souls, converted to theology." His style is usually sweet and flowing; advanced indeed much above the general level of the times in which he lived. He is remarkable for simplicity and perspicuity: he never evinces a desire to startle or to dazzle; but he is sometimes, notwithstanding, so carried away by the magnitude of his subject, and the pious ardour of his soul, as to pour out his sentiments with wonderful eloquence and sublimity. He was a man of considerable learning; but he aimed rather to conceal than to exhibit. He was also a man of real genius; but that was not to be concealed, any more than the meridian splendour of the sun in a clear sky. "He has (says Johnson) provided instruction for all ages, from those who are lisping their first lessons, to the enlightened readers of Malbranche and Locke; he has left neither corporeal nor spiritual nature unexampled; he has taught the art of reasoning, and the science of the stars.

"His character, therefore, must be formed from the multiplicity and diversity of his attainments, rather than from any single performance; for it would not be safe (perhaps) to claim for him the highest rank in any single denomination of literary dignity; yet perhaps there was nothing in which he would not have excelled if he had not divided his powers to different pursuits.

"As a poet, had he been only a poet, he would probably have stood high among the authors with whom he is now associated. For his judgment was exact, and he noted faults and beauties with very nice discernment; his imagination, as the Dacian Battle proves, was vigorous and active, and the stores of knowledge were large by which his fancy was to be supplied. His ear was well tuned, and his diction was elegant and copious." Johnson, it is well known, affirmed that Watts's "devotional poetry is, like that of others, unsatisfactory." But this remark emanated from one of the invincible prejudices with which the mind of that great man was encumbered. It would be easy for any man of taste who is acquainted with Watts's Psalms and Hymns, and Lyric Poems, to select from them specimens of devotional poetry quite as rich in sublimity and imagination as any other poems which he has produced.

WAVE. *s.* (pæge, Saxon; *waegh*, Dutch.) 1. Water raised above the level of the surface; billow (*Wotton*). 2. Unevenness; inequality (*Newton*).

To WAVE. *v. n.* (from the noun.) 1. To play loosely; to float (*Dryden*). 2. To be moved as a signal (*Ben Jonson*). 3. To be in an unsettled state; to fluctuate; to waver (*Hooker*).

To WAVE. *v. a.* (from the noun.) 1. To raise into inequalities of surface (*Shakspeare*). 2. To move loosely (*Milton*). 3. To waft; to remove any thing floating (*Brown*). 4. To beckon: to direct by a waft or motion of any thing (*Shakspeare*). 5. To put off; to quit (*Wotton*). 6. To put aside for the present (*Dryden*).

WAVE, in philosophy, a cavity in the surface of water, or other fluids, with an elevation aside thereof. The waves of the sea are of two kinds, natural and accidental. The natural waves are those which are exactly proportioned in size to the strength of the wind, whose blowing gives origin to them. The accidental waves are those occasioned by the wind's reacting upon itself by repercussion from hills and mountains, or high shores, and by the washing of the waves themselves; otherwise of the natural kind, against rocks and shoals: all these cases give the waves an elevation, which they can never have in their natural state.

WAVED, in heraldry, is said of a bordure, or any ordinary or charge, in a coat of arms, having its outlines indented in manner of the rising and falling of waves: it is used to denote, that the first of the family in whose arms it stands, acquired its honours by sea-service.

To **WA'VER.** *v. a.* (paꝼian, Saxon.) 1. To play to and fro; to move loosely (*Boyle. Thomson*). 2. To be unsettled; to be uncertain, or inconstant; to fluctuate (*Atterbury*).

WA'VERER. *s.* (from *wave.*) One unsettled and irresolute (*Shakspeare*).

WA'VY. *a.* (from *wave.*) 1. Rising in waves (*Dryden*). 2. Playing to and fro, as in undulations (*Philips. Prior*).

WAWES, or *waes. s.* for waves (*Spenser*).

To **WAWL.** *v. n.* (pa, grief, Saxon.) To cry; to howl (*Shakspeare*).

WAX. (*la lire*, French; *wacks*, Germ.) The upper surface of the leaves of many trees is covered with a varnish, which may be separated and obtained in a state of purity, and is found to possess all the properties of bees'-wax. It is hence inferred that wax is a vegetable product, and that the bees extract it unaltered from the leaves of trees and other vegetable substances that contain it. Several plants contain wax in such abundance as to make it worth while to extract it from them. We shall now consider the properties of bees'-wax.

Wax, when pure, is of a whitish colour: it is destitute of taste, and has scarcely any smell. Bees'-wax, indeed, has a pretty strong aromatic smell; but this seems chiefly owing to some substance with which it is mixed; for it disappears almost completely by exposing the wax, drawn out into thin ribbands, for some time to the atmosphere. By this process, which is called bleaching, the yellow colour of the wax disappears, and it becomes very white. Bleached wax is not affected by the air. Its specific gravity is 0·9600.

Wax is insoluble in water; nor are its properties altered though kept under that liquid.

When heat is applied to wax it becomes soft; and at the temperature of 142°, if unbleached, or of 155°, if bleached, it melts into a colourless transparent fluid, which concretes again, and resumes its former appearance as the temperature diminishes. If the heat is still farther increased, the wax boils and evaporates: and if a red heat is applied to the vapour, it takes fire and burns with a bright flame. It is this property which renders wax so useful for making candles.

Wax is scarcely acted on by alcohol when cold, but boiling alcohol dissolves a portion of it. This was first observed by Dr. Pearson, and has been since verified by Dr. Bostock. Rather more than twenty parts of alcohol are necessary to dissolve one part of wax; and as the solution cools the greater part of the wax precipitates, and the remainder is thrown down by water.

Ether has but little action on wax while cold; but when assisted by heat, it takes up about $\frac{1}{20}$ of its weight of it, and lets the greatest part precipitate on cooling.

Wax combines readily with fixed oils when assisted by heat, and forms with them a substance of greater or less consistency according to the quantity of oil. This composition, which is known by the name of cerate, is much employed by surgeons.

The volatile oils also dissolve it when heated. This is well known, at least, to be the case with oil of turpentine. A part of the wax precipitates usually as the solution cools, but of a much softer consistence than usual, and therefore containing oil.

The fixed alkalies combine with it, and form a compound which possesses all the properties of common soap. When boiled with a solution of fixed alkalies in water, the liquid becomes turbid, and after some time the soap separates and swims on the surface. It is precipitated from the alkali by acids in the state of flakes, which are the wax very little altered in its properties. Punic wax, which the ancients employed in painting in encaustic, is a soap composed of twenty parts of wax and one of soda. Its composition was ascertained by Mr. Lorgna.

When boiled with liquid ammonia, it forms a kind of soapy emulsion. As the mixture cools, the greatest part of the compound rises to the surface in the state of white flakes. This soap is scarcely soluble in water.

The acids have but little action on wax; even oxymuriatic acid, which acts so violently on most bodies, produces no other change on it than that of rendering it white. This property which wax possesses, of resisting the action of acids, renders it very useful as a lute, to confine acids properly in vessels, or to prevent them from injuring a common cork.

Mr. Lavoisier, by means of the apparatus which he employed in the analysis of alcohol and oils, contrived to burn wax in oxygen gass. The quantity of wax consumed was 21·9 grains. The oxygen gass employed in consuming that quantity amounted to 66·55 grains. Consequently the substances consumed amounted to 88·45 grains. After the combustion, there were found in the glass vessel 62·58 grains of carbonic acid, and a quantity of water, which was supposed to amount to 25·87 grains. These were the only products.

Now 62·58 grains of carbonic acid gass contain
44·56 of oxygen, and 18·02 of carbon; and
25·87 grains of water contain
21·99 of oxygen, and 3·88 of hydrogen
——— ———
66·55 21·90

Consequently 21·9 parts of wax are composed of 18·02 of carbon and 3·88 of hydrogen. And 100 parts of wax are composed of
82·28 carbon
17·72 hydrogen
———
100.00

But this analysis can only be considered as an approximation to the truth; the quantity of water being only estimated, and that of the gass being liable to uncertainty. There can be no doubt, from the little action of acids on wax, that it contains oxygen as an ingredient. We must therefore consider it as a triple compound of carbon, hydrogen, and oxygen; but the proportions are unknown.

If wax is distilled with a heat greater than 212°, there comes over a little water, some acid, a little very fluid and odorous oil: the oil, as the distillation advances, becomes thicker and thicker, till at last it is of the consistency of butter, and for this reason has been called butter of wax. There remains in the retort a small quantity of coal, which is not easily reduced to ashes. When the butter of wax is repeatedly distilled, it becomes very fluid, and assumes the properties of volatile oil.

Wax possesses all the essential properties of fixed oil. We must therefore consider it as a fixed oil rendered concrete. Now that species of fixed oils, distinguished by the epithet fat, have the property of becoming concrete, and assuming the appearance of wax when exposed long to the air; in consequence, it is supposed, of the absorption of oxygen. Hence probably the difference between wax and fixed oils consists in the oxygen which it contains as a component part. The wax at its first formation was in all probability in the state of a fixed oil; but by the absorption of oxygen it gradually concreted into wax. Wax, then, may be considered as a fixed oil saturated with oxygen.

It is natural to suppose, if this theory is just, that fixed oil will occur in plants in various states of hardness: and this accordingly is the case. Sometimes it is of the consistency of butter, and this is denominated a butter; thus we have the butter of cacao, the butter of coco, the butter of galam. Sometimes it is of a greater consistency, and then is denominated tallow; thus we have the tallow of the croton, extracted by boiling water from the fruit of the croton sebifera. When its consistency is as great as possible, it then takes the appellation of wax. Thus we have the myrtle wax of America extracted from the berries of the myrica cerifera, and the pela of the Chinese. The species of wax, then, which exist in the vegetable kingdom, may possibly be as numerous as the fixed oils. Let us take a view of some of the most remarkable.

Bees'-wax is the species whose properties have been described in the former part of this article. It is supposed that the bees collect it from plants; but it has been very well ascertained, that in many cases at least they manufacture it from honey, and even from sugar: for bees confined and fed solely upon these substances produce wax. Its consistency is said to be less when the bees are confined to sugar than when they are allowed honey.

The myrtle wax of North America is obtained from the myrica cerifera. We are indebted to Dr. Bostock and Mr. Cadet for a very exact account of its properties and extraction. The myrica cerifera is a shrub which grows abundantly in Louisiana and other parts of North America. It produces a berry about the size of a pepper-corn. A very fertile shrub yields nearly seven pounds. The berries are picked off, thrown into a kettle, and covered with water to the depth of about half a foot. The kettle is then boiled, and the berries stirred and squeezed against the sides of the vessel. The wax which they contain is melted out and swims on the surface. It is skimmed off, passed through a cloth, dried, melted again, and cast into cakes. From the observations of Cadet we learn that the wax forms the outer covering of the berries. The wax thus obtained is of a pale green colour. Its specific gravity is 1·0150. It melts at the temperature of 109°; when strongly heated it burns with a white flame, produces little smoke, and during the combustion emits an agreeable aromatic odour. Water does not act upon it. Alcohol, when hot, dissolves $\frac{1}{20}$th of its weight, but lets most of it fall again on cooling.

There is another species of the myrica, M. gale, found in many of the boggy mosses of our own country, that produces the same material. It is also obtained in South America, as we learn from M. Humboldt, from one or two of the palms, and especially the ceroxylon andicola.

There are, also, various other insects, besides the bee, that yield either wax or a material very nearly resembling it, as the corcus lacca, or gum-lac insect, and perhaps one or two other species of this genus. There is, moreover, another waxy material, collected in a manner somewhat similar, in China, and which is called pela, well known to be the product of an insect, though the name of the insect is not well known.

It is probable, as we have observed already, that in all these cases the matter of wax is obtained by the insect from the vegetable kingdom. And it has been usually supposed that it consists of the pollen which the bees visibly collect on their thighs, and afterwards elaborate in some unknown way. The great difference, however, between wax and this matter which the bees collect has been long remarked. When examined by the microscope, this little mass of pollen is obviously composed of a number of hard grains compressed together; and if it be laid on a hot plate, it does not melt as wax would do, but smokes, dries, and is reduced to a coal, and, if kindled, burns without melting. Some late and very curious experiments, however, of M. Huber, one of the most celebrated apiarists in Europe, have shown that the pollen has no share whatever in the formation of wax, but that this substance is produced indiscriminately from honey, sugar, or any other saccharine matter, which serves as food for the bees. The details of these experiments would occupy too much space: it is sufficient to mention that they were performed by confining separate swarms of bees within their hives, and feeding one hive with honey, another with muscovado sugar, another with treacle, another with refined sugar, in all of which abundance of wax was produced: and on the other hand by feeding another hive with only pollen and fruits, no wax whatever was formed, though the bees remained a week in their confinement. Other observations and experiments by this ingenious naturalist still further explain this subject, by shewing what is the real use of the pollen, namely, to afford sustenance for the larvæ of the bee the moment it is hatched.

There is a vegetable wax which has lately been discovered in the Brazils, though the tree from which it is produced is not accurately known, that bids fair to prove an article of highly useful and extensive commerce between that country and our own. The only specimen of it which has been received in England was transmitted to lord Grenville from Rio de Janeiro, by the comte de Galveas, as a new article lately brought to that city, from the northernmost parts of the Brazilian dominions, the capiteneas of Rio Grande and Seara, between the latitudes of three and seven degrees north: it is said to be the production of a tree of slow growth, called by the natives *carnauba*, which also produces a gum used as food for men, and another substance employed for fattening poultry.

When the comte wrote to lord Grenville not long ago, orders had been sent to the governors of the districts where it grows, requiring them to report more particularly on the nature and qualities of this interesting tree; we may therefore hope that information will soon be obtained whether the article can be procured in abundance, and at a reasonable price, in which case it will become a valuable addition to the comforts of mankind, by reducing the price and improving the quality of candles, flambeaux, &c.

The article, in the state in which it was sent, resembles much that described by Humboldt, as the produce of the ceroxylon andicola; but it is not likely to be the same, as Humboldt's wax is collected from a stately palm tree, which grows on the high mountains, from 900 to 1450 toises above the level of the sea, and on the edge of the regions of perpetual snow. On the other hand, the Brazilian plant is described as a slow growing tree, but not as a large one, and there are no high mountains delineated in the most accurate and recent maps of the capiteneas where it is found. But a more decisive argument against their identity is the analysis of Vauquelin, published by Humboldt, which shows, that the produce of the ceroxylon consists of two-thirds resin and only one-third wax; but the Brazilian article is entirely wax, and affords not the smallest trace of resin. The Brazilian plant, however, was not entirely unknown to Humboldt, for it appears from his book, that Mr. Correa had informed him, that a palm, called carnauba by the natives of Brazil, produced wax from its leaves.

The wax, in its rough state, is in the form of a coarse pale gray powder, soft to the touch, and mixed with various impurities, consisting chiefly of fibres of the bark of the tree, which, when separated by a sieve, amount to about forty per cent. It possesses the following characters, according to the analysis of Mr. Brande, as given in the Phil. Trans. for 1811.

"It has an agreeable odour, somewhat resembling new hay, but scarcely any taste.

"At 206° Fahrenheit it enters into perfect fusion, and in this state it may be farther purified, by passing it through fine linen. By this process, it acquires a dirty green colour, and its peculiar smell becomes more evident. When cold, it is moderately hard and brittle. Its specific gravity is 0·980.

2. "Water exerts no action on the wax, unless boiled with it for some hours; it then acquires a slight brown tinge, and the peculiar odour of the wax.

3. "Alcohol does not dissolve any portion of the wax, unless heat be applied.

"Two fluid ounces of boiling alcohol, specific gravity 0·826, dissolve about ten grains of the wax, of which eight grains are deposited as the solution cools, and the remaining two grains may be afterward precipitated by the addition of water, or may be obtained unaltered by evaporating the alcohol.

"The solution of the wax in alcohol has a slightly green tinge.

4. "Sulphuric ether, specific gravity 0·7563, dissolves a very minute portion of the wax, at the temperature of 60°.

"Two fluid ounces of boiling sulphuric ether dissolve thirty grains of the wax, of which twenty-six grains are deposited by cooling the solution, and the remaining four grains may be obtained by allowing the ether to evaporate spontaneously.

5. "The fixed oils very readily dissolve the wax at the temperature of boiling water, and form with it compounds of an intermediate consistence, very analogous to those which are obtained with common bees-wax."

From the detail of experiments, it appears, that, although the South American vegetable wax possesses the characteristic properties of bees'-wax, it differs from that substance in many of its chemical habitudes; it also differs from the other varieties of wax, namely, the wax of the myrica cerifera, of lac, and of white lac.

The attempts made by Mr. Brande to bleach the wax were conducted on a small scale; but from the experiments related, it appears, that, after the colour has been changed by the action of very dilute nitric acid, it may be rendered nearly white by the usual means. He had not had sufficient time to ascertain whether the wax can be more effectually bleached by long continued exposure, nor had he had an opportunity of submitting it to the processes employed by the bleachers of bees'-wax.

Perhaps the most important part of the present inquiry is that which relates to the combustion of the vegetable wax, in the form of candles.

The trials which have been made, to ascertain its fitness for this purpose, are extremely satisfactory; and, when the wick is properly proportioned to the size of the candle, the combustion is as perfect and uniform as that of common bees'-wax.

The addition of from one-eighth to one-tenth part of tallow is sufficient to obviate the brittleness of the wax in its pure state, without giving it any unpleasant smell, or materially impairing the brilliancy of its flame. A mixture of three parts of the vegetable wax, with one part of bees-wax, also makes very excellent candles.

WAX (Sealing). Dutch or Spanish wax. A wax used for seals or signets, and prepared from gum-lac, melted and intermixed with rosins, and coloured with a variety of pigments, according to the fancy of the manufacturer.

There are two kinds of sealing-wax in general use: the one harder, which is that commonly used for letters; and the other softer, and employed for receiving the impressions of seals of office to charters, patents, and other public instruments.

The first is commonly of a red colour; and the best sort is made by mixing two parts of shell-lac, well powdered, with one part of rosin and vermilion in powder, over a gentle fire. The ingredients will soon become incorporated, and are then to be worked into sticks. Seed-lac may be substituted for shell-lac, and Venice turpentine for rosin. The coarser red sealing-wax of this hard kind may be made by mixing together a larger proportion of rosin, and employing half vermilion and half red lead, instead of all the former substance. Sometimes, in a very coarse wax, the vermilion is entirely omitted, and the shell-lac also, leaving nothing but rosin and red lead.

Hard black sealing-wax may be prepared in the same manner, using the best ivory black instead of vermilion for the best sort, and common ivory black, or lamp-black, for the coarser sort.

For hard green sealing-wax, verdigrease is employed in the place of vermilion; and for hard blue sealing-wax, well-powdered smalt; or for a lighter blue, verditer, or a mixture of both. For yellow hard sealing-wax, massicot may be substituted; and for a bright yellow, turbith mineral. The hard purple wax is made like the red: changing half the quantity of the vermilion for an equal, or greater proportion of smalt, as the purple is desired to be of a redder or deeper tinge.

The usual preparation for uncoloured soft sealing-wax is as follows: take of bees-wax one pound; of turpentine three ounces; of olive-oil one ounce. Place them in a proper vessel over the fire, and let them boil for some time; and the wax will be then fit to be formed into rolls or cakes for use. For red, black, green, blue, yellow, and purple, soft sealing wax, add to the preceding composition an ounce or more of any of the colouring ingredients above, and stir the mass till the whole is intimately incorporated.

The hard sealing-wax is formed into sticks by rolling the mass on a copper-plate or stone, with a rolling-board, lined with copper or block-tin, into rolls of any required size. In order to give them the fire-polish or gloss, a furnace or stove, like a pail, with bars at the bottom for supporting the charcoal, and notches at the top of the sides for putting the sticks of wax over the fire, is usually provided. By means of this stove the sticks of wax may be conveniently exposed to the fire, and turned about till the wax is so melted on the surface as to become smooth and shining. Hard sealing-wax may be formed into balls, by putting a proper quantity on the plate or stone, and having fashioned it into a round form, rolling it with the board till it become smooth.

The soft wax is easily formed into rolls, or cakes, by pouring the melted mass of the ingredients, as soon as they are prepared, into cold water, and working it with the hand into any desired figure. Some perfume both these kinds of wax by using, for a pound of the wax, half an ounce of benzoin, one scruple of oil of rhodium, ten grains of musk, and five grains of civet and ambergris; rubbing the oil with the other ingredients powdered; and when the wax is ready to be wrought into sticks, sprinkling in and well stirring the mixture: and in this manner different perfumes may be employed at the option of the manufacturer.

To WAX. *v. a.* (from the noun.) To smear; to join with wax (*Dryden*).

To WAX. *v. n.* pret. *wax, waxed,* part. pass. *waxed, waxen.* (peaxan, Saxon; *wachsen,* Ger.) 1. To grow; to increase; to become bigger, or more (*Hakewill*). 2. To pass into any state; to become; to grow (*Hooker*).

WA'XCHANDLER. *s.* (from *wax* and *chandler.*) A maker of wax candles.

WA'XEN. *a.* (from *wax.*) Made of wax.

WAXHOLM, a fortress on the coast of Sweden, in the Baltic, situated on a small island at the entrance of the lake Malar, where all homeward-bound ships are searched. It is 16 miles E. of Stockholm.

WAX-WORK, the representation of the faces, &c. of persons living or dead; made by applying plaster of Paris in a kind of paste, and thus forming a mould containing the exact representation of the features. Into this mould melted wax is poured, and thus a kind of masks is formed; which being painted and set with glass eyes, and the figures dressed in their proper habits, they bear such a resemblance that it is difficult to distinguish between the copy and the original.

WAY. *s.* (pæg, Saxon.) 1. The road on which one travels (*Prior*). 2. Road made for passengers (*Shakspeare*). 3. A length of space (*L'Estrange*). 4. Course; direction of motion; local tendency (*Locke*). 5. Advance in life (*Spectator*). 6. Passage; power of progression made or given (*Temple*). 7. Vacancy made by timorous or respectful recession (*Swift*). 8. Course; regular progression (*Dry*.). 9. Course or progress considered as obstructed or hindered: *company comes in my* way *when I should write* (*Duppa*). 10. Tendency to any meaning, or act: *his opinions tend the wrong* way (*Atterbury*). 11. Access; means of admittance: *he made his* way *to the judge* (*Raleigh*). 12. Sphere of observation: *there have fallen in my* way *many learned men* (*Temple*). 13. Means; mediate instrument; intermediate step: *which* way *will you prove it?* (*Tillotson*). 14. Method; scheme of management: *his* way *was to interest his friends in his success* (*Dan.*). 15. Private determination; particular will or humour: *he follows his own* way *without hearing others* (*Ben Jonson*). 16. Manner; mode: *this is the present* way *of dress* (*Addison*). 17. Method; manner of practice: *his* way *is to rise early* (*Sidney*). 18. Method or plan of life, conduct, or action: *he is very careful of his* ways (*Milton*). 19. Process of things good or ill: *his affairs are in a prosperous* way (*Heylin*). 20. Right method to act or know: *this is the* way *to be wise* (*Locke. Rowe*). 21. General scheme of acting: *he went out of his* way *to effect this* (*Clarissa*). 22. *By the way.* Without any necessary connexion with the main design (*Bacon*). 23. *To go or come one's way or ways.* To come along or depart (*L'Estrange*). 24. *Way* and *ways* are now often used corruptly for *wise: he was no* ways *a match for him* (*Swift*).

Way, a passage or road. The Roman ways are divided into consular, prætorian, military, and public; and of these we have four remarkable ones in England: the first, Watling-street, or Watheling-street, leading from Dover to London, Dunstable, Toucester, Atterston, and the Severn, extending as far as Anglesea in Wales. The second, called Hikenild or Ikenild-street, stretches from Southampton over the river Isis at Newbridge; thence by Camden and Lichfield; then passes the Derwent near Derby, and ends at Tinmouth. The third, called Fosse-way, because, in some places, it was never perfected, but lies as a large ditch, leads from Cornwall through Devonshire, by Tetbury, near Stow in the Wolds; and beside Coventry to Leicester, Newark, and so to Lincoln. The fourth, called Erming or Erminage-street, extends from St. David's, in Wales, to Southampton.

Way (Covert, gang, hatch). See Covert-way, Gang, &c.

Way of a ship, is sometimes the same as her rake, or run forward or backward: but this term is most commonly understood of her sailing.

Way (Milky). See Galaxy.

Ways (Rights of) in law. This may be grounded on a special permission; as when the owner of the land grants to another a liberty of passing over his grounds, to go to church, to market, or the like: in which case the gift or grant is particular, and confined to the grantee alone; it dies with the person: and if the grantee leaves the country, he cannot assign over his right to any other; nor can he justify taking another person in his company. A way may be also by prescription; as if all the owners and occupiers of such a farm have immemorially used to cross another's ground: for this immemorial usage supposes an original grant, whereby a right of way thus appurtenant to land may clearly be created. A right of way may also arise by act and operation of law; for if a man grants me a piece of ground in the middle of his field, he at the same time tacitly and impliedly gives me a way to come at it; and I may cross his land for that purpose without trespass. For when the law doth give any thing to one, it giveth impliedly whatsoever is necessary for enjoying the same. By the law of the twelve tables at Rome, where a man had the right of way over another's land, and the road was out of repair, he who had the right of way might go over any part of the land he pleased: which was the established rule in public as well as private ways. And the law of England, in both cases, seems to correspond with the Roman.

WAYED-HORSE, in the manage, is one that is already backed and broken, and shews a disposition to the manage.

WAYFA'RER. *s.* (*way* and *fare*, to go.) Passenger; traveller (*Carew*).

WAYFA'RING. *a.* Travelling; passing; being on a journey (*Hammond*).

Wayfaring-tree. See Viburnum.

To WAYLA'Y. *v. n.* (*way* and *lay.*) To watch insidiously in the way; to beset by ambush (*Dryden*).

WAYLA'YER. *s.* (from *waylay.*) One who waits in ambush for another.

WA'YLESS. *a.* (from *way.*) Pathless; untracked (*Drayton*).

WA'YMARK. *s.* (*way* and *mark.*) Mark to guide in travelling (*Jeremiah*).

To WA'YMEET. *v. a.* (pa, Saxon.) To lament, or grieve: obsolete (*Spenser*).

WAYNESBOROUGH, a town of the state of Georgia, in the county of Burke, 30 miles S. of Augusta. Lon. 82. 46 W. Lat. 33. 45 N.

WA'YWARD. *a.* (pa, woe, and peaꞃꝺ, Sax.) Froward; peevish; morose; vexatious; liking his own way (*Fairfax*).

WA'YWARDLY. *ad.* Frowardly; perversely.

WA'YWARDNESS. *s.* (from *wayward.*) Frowardness; peevishness (*Wotton*).

WE. *pronoun.* The plural of *I.* (See I).

WEAK. *a.* (pæc, Saxon; *week*, Dutch.) 1. Feeble; not strong (*Locke*). 2. Infirm; not healthy (*Shakspeare*). 3. Soft; pliant; not stiff. 4. Low of sound (*Ascham*). 5. Feeble of mind; wanting spirit (*Swift*). 6. Not much impregrated with any ingredient: as, a *weak* tincture; *weak* beer. 7. Not powerful; not potent (*Swift*). 8. Not well supported by argument (*Hooker*). 9. Unfortified.

To WEA'KEN. *v. a.* To debilitate; to enfeeble; to deprive of strength (*Ray*).

WEA'KLING. *s.* (from *weak.*) A feeble creature (*Shakspeare*).

WEA'KLY. *ad.* (from *weak.*) 1. Feebly; faintly; without strength. 2. With want of efficacy (*Bacon*). 3. Indiscreetly; injudiciously; timorously; with feebleness of mind.

Wea'kly. *a.* (from *weak.*) Not strong; not healthy (*Raleigh*).

WEA'KNESS. *s.* (from *weak.*) 1. Want of strength; want of force; feebleness (*Dryden*). 2. Want of sprightliness (*Pope*). 3. Want of steadiness (*Rogers*). 4. Infirmity; unhealthiness (*Temple*). 5. Want of cogency (*Tillotson*). 6. Want of judgment; want of resolution; foolishness of mind (*Milton*). 7. Defect; failing (*Bacon*).

WEA'KSIDE. *s.* (*weak* and *side.*) Foible; deficiency; infirmity (*Temple*).

WEAL. *s.* (ƿelan, Saxon; *weolust*, Dutch.) 1. Happiness; prosperity; flourishing state (*Temple*). 2. Republic; state; public interest.

Weal. *s.* (ƿalan, Saxon.) The mark of a stripe (*Donne*).

Weal *away. interj.* Alas: obsolete (*Spen.*).

WEALD, *Wald*, *Walt.* Whether singly or jointly, signify a wood or grove, from the Saxon ƿealꝺ (*Gibson*).

WEALTH. *s.* (paleᵹ, rich, Saxon.) 1. Prosperity; external happiness (*Com. Pr.*). 2. Riches; money, or precious goods (*Dryden*).

WEA'LTHILY. *ad.* (from *wealthy.*) Richly (*Shakspeare*).

WEA'LTHINESS. *s.* (from *wealthy.*) Richness.

WEA'LTHY. *a.* (from *wealth.*) Rich; opulent; abundant (*Spenser*).

To WEAN. *v. a.* (ƿenan, Saxon.) 1. To put from the breast; to ablactate (*Shakspeare*). 2. To withdraw from any habit or desire (*Stillingfleet*).

WEA'NEL. Wea'nling. *s.* (from *wean.*) 1. An animal newly weaned (*Spens. Milt.*). 2. A child newly weaned.

WEANING OF INFANTS. See Infancy.

Weaning, in respect to colts and other young quadrupeds, must always depend upon circumstances, both of season and the direct object in view. Thus, a foal produced at the latter end of April, or the beginning of May, will better bear weaning in the early part of October, than a foal dropt in June will in two months after; and this is readily accounted for by the great length of summer the former enjoys in respect to growth, strength, and expansion over the latter. Where the foal, from having fallen late in the year, is observed to be weak in body and constitution, or stinted in growth, great advantage may be obtained by letting him run in an unrestrained state with the dam during the remainder of the winter.

It is in general the custom, and especially with colts and fillies bred for the turf, to wean them the latter end of September, or the beginning of October; as the dam is then again occasionally in a state of gestation.

WEA'PON. *s.* (ƿeapon, Saxon.) Instrument of offence; something with which one is armed to hurt another (*Shakspeare*).

WEA'PONED. *a.* (from *weapon.*) Armed for offence; furnished with arms (*Hayward*).

WEA'PONLESS. *a.* (from *weapon.*) Having no weapon; unarmed (*Milton*).

WEA'PONSALVE. *s.* A salve which was supposed to cure the wound, being applied to the weapon that made it (*Boyle*).

To WEAR. *v. a.* preterit *wore*, participle *worn.* (ƿeꞃan, Saxon.) 1. To waste with use and time (*Peacham*). 2. To consume tediously (*Carew*). 3. To carry appendant to the body (*Shakspeare*). 4. To exhibit in appearance (*Dryden*). 5. To affect by degrees (*Locke*). 6. *To* Wear *out.* To harass (*Dan.*). 7. *To* Wear *out.* To waste or destroy by degrees (*Dryden*).

To Wear. *v. n.* 1. To be wasted with use or time (*Exodus*). 2. To be tediously spent (*Milton*). 3. To pass by degrees (*Rogers*).

Wear. *s.* (from the verb.) 1. The act of wearing; the thing worn (*Hudibras*). 2. (ƿæꞃ, Saxon, a fen; *war*, German, a mound.) A dam to shut up and raise the water; often written *weir* or *wier* (*Walton*).

Wear, a river, which rises in the west part of the county of Durham, and divides it into two parts; flowing S.E. by Stanhope to Bishop Auckland, and thence N.E. by Durham to Sunderland, where it falls into the German ocean.

WEARD. *s.* *Weard*, whether initial or final, signifies watchfulness or care, from the Saxon ƿeaꞃꝺan, to ward or keep (*Gibson*).

WEA'RER. *s.* (from *wear.*) 1. One who has any thing appendant to his person (*Add.*). 2. That which wastes or diminishes (*Law*).

WEA'RINESS. *s.* (from *weary.*) 1. Lassitude; state of being spent with labour (*Hale*). 2. Fatigue; cause of lassitude (*Clarendon*). 3. Impatience of any thing. 4. Tediousness.

WEA'RING. *s.* (from *wear.*) Clothes (*Shakspeare*).

WEA'RISH. *a.* (from ƿæꞃ, Saxon, a quagmire.) 1. Boggy; watery. 2. Weak; washy (*Carew*).

WEA'RISOME. *a.* (from *weary.*) Troublesome; tedious; causing weariness (*Denham*).

WEA'RISOMELY. *ad.* Tediously; so as to cause weariness (*Raleigh*).

WEA'RISOMENESS. *s.* (from *wearisome.*) 1. The quality of tiring. 2. The state of being easily tired (*Ascham*).

WEARMOUTH, a village in Durham, on the north side of the mouth of the Wear, opposite Sunderland. It is also called Monk Wearmouth, having, before the dissolution, belonged to the monks. Here is an iron bridge over the Wear, of one arch 236 feet span, erected in 1796. See Iron bridge.

Wearmouth (Bishop), a village in Durham, one mile S.W. of Sunderland. It has a manufacture of sailcloth.

To WEA'RY. *v. a.* (from the adjective.) 1. To tire; to fatigue; to harass; to subdue by labour (*Addison*). 2. To make impatient of continuance (*Shakspeare*). 3. To subdue or harass by any thing irksome (*Milton*).

WEA'RY. *a.* (peꞃᵹ, Sax. *waeren*, to tire, Dutch.) 1. Subdued by fatigue; tired with labour (*Spenser*). 2. Impatient of the continuance of any thing painful or irksome (*Clarendon*). 3. Desirous to discontinue (*Shakspeare*). 4. Causing weariness; tiresome (*Shakspeare*).

WEA'SAND. *s.* (paꞅen, Sax. This word is very variously written.) The windpipe; the passage through which the breath is drawn and emitted; the larynx (*Spenser*).

WEASEL. (See VIVERRA.) This animal, though little seen in the environs of towns, is an animal very well known in most parts of the country: it varies in no great degree from the stoat, either in shape, make, or propensity. Its favourite alimentary enjoyment seems the destruction of eggs by suction; although it pursues and destroys poultry and game with equal avidity. By some instinctive impulse of scent or sagacity, the weasel is enabled to follow a hare, which it pursues with great enthusiasm; and whenever the hare unsuspectingly squats, if this inveterate enemy happen to get up, it immediately makes a spring, seizes the hare near the poll, and never quits its hold till the animal (running in a state of distraction, and with the most piteous shrieks) at length dies. The weasel may justly rank in the list of venomous animals, for its bite is, among quadrupeds, almost universally fatal: a hare or rabbit bitten by the weasel is seldom known to recover.

In its pursuits, it has several points much in its favour: its activity, and the peculiar formation of its claws, enable it to scale walls with so much ease, that no spot is secure from its depredations. For its luxurious repasts, however, upon eggs and young poultry, it makes some amends to the farmer by its inveteracy to rats and mice; having something of the ferret in its nature, it is to these an implacable enemy, and pursues them with mortal hatred. Of young pigeons it is likewise a destructive depredator; and when it has young is more bold and indefatigable in its researches. In the dusk of the evening, and by moonlight, it may frequently be seen stealing from its lurking place under faggot-piles or corn-ricks, near the farm-house, taking the barns, stables, pigsties, and poultry-house in search of prey; which, when it has killed, if not too large, it drags to its place of retreat. In the summer it will venture farther from its haunts, and may be often traced by the side of rivulets and near mills, in both places in quest of rats.

WEA'THER. *s.* (peðeꞃ, Saxon.) 1. State of the air, respecting either cold or heat, wet or dryness (*L'Estrange*). 2. The change of the state of the air (*Bacon*). 3. Tempest; storm (*Dryden*).

To WEA'THER. *v. a.* (from the noun.) 1. To expose to the air (*Spenser*). 2. To pass with difficulty (*Garth*). 3. *To* WEATHER *a point.* To gain a point against the wind (*Addison*). 4. *To* WEATHER *out.* To endure (*Addison*).

WEATHER, denotes the state or disposition of the atmosphere, with regard to heat and cold, drought and moisture, fair or foul, wind, rain, hail, frost, snow, fog, &c. See ATMOSPHERE, HAIL, HEAT, FROST, RAIN, &c.

There does not seem in all philosophy any thing of more immediate concernment to us than the state of the weather; as it is in, and by means of the atmosphere, that all plants are nourished, and all animals live and breathe; and as any alterations in the density, heat, purity, &c. of that, must necessarily be attended with proportionable ones in the state of these.

The great, but regular alterations, a little change of weather makes in many parts of inanimate matter, every person knows, in the common instance of barometers, thermometers, hygrometers, &c.; and it is owing partly to our inattention, and partly to our unequal and intemperate course of life, that we also, like many other animals, do not feel as great and as regular ones in the tubes, chords, and fibres of our own bodies.

To establish a proper theory of the weather, it would be necessary to have registers carefully kept in divers parts of the globe, for a long series of years; from whence we might be enabled to determine the directions, breadth, and bounds of the winds, and of the weather they bring with them; with the correspondence between the weather of divers places, and the difference between one sort and another at the same place. We might thus in time learn to foretel many great emergencies; as, extraordinary heats, rains, frosts, droughts, dearths, and even plagues, and other epidemical diseases, &c.

Mr. Kirwan, in vol. v. of the Transactions of the Irish Academy, has laid down the following rules, as the result of a careful examination of observations which had been made in England, during a period of 112 years.

1. When no storm has either preceded or followed the vernal equinox, the succeeding summer is, in general, dry, or at least so five times out of six.

2. If a storm happen from an easterly point, on the 19th, 20th, or 21st day of May, the ensuing summer will, four times in five, be also dry.—The same event generally takes place, if a storm arise on the 25th, 26th, or 27th days of March, in any point of the compass.

3. Should there be a storm, either at south-west or at west-south-west, on the 19th, 20th, 21st, or 22d of March, the following summer is wet, five times out of six.

In England, if the winters and springs be dry, they are mostly cold; but, if moist, they are generally warm: on the contrary, dry summers and autumns are usually hot; as moist summers are cold. Thus, if the humidity or dryness of a particular season be determined, a tolerably correct idea may be formed respecting its temperature.—To these indications may be added the following maxims; which, being the result of observations made by accurate inquirers, may so far be depended upon, as they will afford a criterion of the mildness or severity, and of the dryness or moisture, of future seasons.

1. A moist autumn, succeeded by a mild winter, is generally followed by a dry and cold spring; in consequence of which, vegetation is greatly retarded.

2. Should the summer be uncommonly wet, the succeeding winter will be severe; because the heat or warmth of the earth will be carried off by such unusual evaporation. Farther, wet summers are mostly attended with an increased quantity of fruit on the white-thorn and dog-rose; nay, the uncommon fruitfulness of these shrubs is considered as the presage of an intensely cold winter.

3. A severe winter is always indicated by the appearance of cranes and other birds of passage at an early period in autumn; because they never migrate southwards, till the cold season has commenced in the northern regions.

4. If frequent showers fall in the month of September, it seldom rains in May; and the reverse.

5. On the other hand, when the wind often blows from the south-west, during either summer or autumn; when the air is unusually cold for those seasons, both to our sensations, and by the thermometer; at the same time, the mercury being low in the barometer;—under these conditions, a profuse fall of rain may be expected.

6. Great storms, rains, or other violent commotions of the clouds, produce a kind of crisis in the atmosphere; so that they are attended with a regular succession, either of fine or of bad weather, for some months.

Lastly, an unproductive year mostly succeeds a rainy winter; as a rough and cold autumn prognosticates a severe winter.—See also the article Climate.

Weather, in sea-language, is used as an adjective, and applied by mariners to every thing lying to windward of a particular situation: thus, a ship is said to have the weather-gage of another, when she is farther to windward. Thus also, when a ship under sail presents either of her sides to the wind, it is then called the weather-side or weather-board; and all the rigging and furniture situated thereon are distinguished by the same epithet, as the weather-shrouds, the weather-lifts, the weather-braces, &c.

WEA'THERBEATEN. *a.* Harassed and seasoned by hard weather (*Suckling*).

WEA'THERCOCK. *s.* (*weather* and *cock.*) 1. An artificial cock set on the top of a spire, which by turning shows the point from which the wind blows (*Brown*). 2. Any thing fickle or inconstant (*Dryden*).

WEA'THERDRIVEN. *part.* Forced by storms or contrary winds (*Carew*).

WEA'THERGAGE. *s.* (*weather* and *gage.*) Any thing that shows the weather (*Hudib.*).

WEATHERGLASS. See Barometer.

WEATHERSPY'. *s.* (*weather* and *spy.*) A stargazer; an astrologer; one that foretels the weather (*Donne*).

WEA'THERWISE. *a.* (*weather* and *wise.*) Skilful in foretelling the weather.

WEA'THERWISER. *s.* (*weather* and *wisen*, Dutch, to show.) Any thing that foreshows the weather (*Derham*).

To WEAVE. *v. a.* preterit. *wove, weaved*; part. pass. *woven, weaved.* (ƿeꝼan, Saxon.) 1. To form by texture (*Dryden*). 2. To unite by intermixture (*Addison*). 3. To interpose; to insert (*Shakspeare*).

To Weave. *v. n.* To work with a loom.

WEA'VER. *s.* (from *weave.*) One who makes thread into cloth (*Shakspeare*).

WEAVING. See Cloth, Cotton, Loom, &c.

WEB. *s.* (ƿebba, Saxon.) 1. Texture; any thing woven (*Davies*). 2. A kind of dusky film that hinders the sight; suffusion (*Shakspeare*).

WE'BBED. *a.* (from *web.*) Joined by a film (*Derham*).

WEBERA, in botany, a genus of the class pentandria, order monogynia. Corol twisted, berry inferior, two-celled, the cells one-seeded; style elevated; stigma clavate; calyx five-cleft. Two species; one a shrub of Malabar; one an Indian tree with pubescent branches; style much longer than the corol.

WE'BFOOTED. *a.* (*web* and *foot.*) Palmipede; having films between the toes (*Ray*).

WE'BSTER. *s.* (ƿebꞅꞇꞃe, Sax.) A weaver: obsolete (*Camden*).

To WED. *v. a.* (ƿeꝺian, Saxon.) 1. To marry; to take for husband or wife (*Pope*). 2. To join in marriage (*Shakspeare*). 3. To unite for ever (*Shakspeare*). 4. To take for ever (*Clarendon*). 5. To unite by love or fondness (*Tillotson*).

To Wed. *v. n.* To contract matrimony (*Shakspeare*).

WE'DDING. *s.* (from *wed.*) Marriage nuptials; the nuptial ceremony (*Graunt*).

WEDELIA, in botany, a genus of the class syngenesia, order polygamia necessaria. Receptacle chaffy; seeds crowned with from four to ten teeth; calyx simple, four or five-leaved. Two species: one a plant of Carthagena, the other of Mexico.

WEDGE. *s.* (*vegge*, Danish; *wegge*, Dutch.) 1. A body which, having a sharp edge continually growing thicker, is used to cleave timber (*Spenser. Arbuthnot*). 2. A mass of metal (*Spenser*). 3. Any thing in the form of a wedge (*Milton*).

To Wedge. *v. a.* (from the noun.) 1. To cleave with a wedge (*Shakspeare*). 2. To drive as a wedge is driven (*Shakspeare*). 3. To force as a wedge forces (*Milton*). 4. To fasten by wedges (*A. Phillips*). 5. To fix as a wedge (*Bentley*).

Wedge, in mechanics, one of the five mechanical powers, or simple engines; being a geometrical wedge, or very acute triangular prism, applied to the splitting of wood, or rocks, or raising great weights.

The wedge is made of iron, or some other hard matter, and applied to the raising of vast weights, or separating large or very firm blocks of wood or stone, by introducing the thin edge of the wedge, and driving it in by blows struck upon the back by hammers or mallets.

The wedge is the most powerful of all the simple machines, having an almost unlimited and double advantage over all the other simple mechanical powers; both as it may be made vastly thin, in proportion to its height, in which consists its own natural power; and as it is urged by the force of percussion, or of smart blows, which is a force incomparably greater than any mere dead weight or pressure, such as is employed upon other machines. And accordingly we find it produces effects vastly superior to those of any other power whatever; such as the splitting and raising the largest and hardest rocks; or even the raising and lifting the largest ship, by driving a wedge below it; which a man can do by the blow of a mallet: and thus the small blow of a hammer, on the back of a wedge, appears to be incomparably greater than any mere pressure, and will overcome it.

To the wedge may be referred all edge-tools, and tools that have a sharp point, in order to cut, cleave, slit, split, chop, pierce, bore, or the like; as knives, hatchets, swords, bodkins, &c.

In the wedge, the friction against the sides is very great, at least equal to the force to be overcome; because the wedge retains any position to which it is driven; and therefore the resistance is at least doubled by the friction.

Authors have been of various opinions concerning the principle from whence the wedge derives its power. Aristotle considers it as two levers of the first kind, inclined towards each other, and acting opposite ways. Guido Ubaldi, Mersenne, &c. will have them to be levers of the second kind. But De Lanis shews, that the wedge cannot be reduced to any lever at all. Others refer the wedge to the inclined plane. And others again, with De Stair, will hardly allow the wedge to have any force at all in itself; ascribing much the greatest part to the mallet which drives it.

The doctrine of the force of the wedge, according to some writers, is contained in this proposition: "If a power directly applied to the head of a wedge, be to the resistance to be overcome, as the breadth of the back GB, is to the height EC; then the power will be equal to the resistance; and if increased, it will overcome it."

But Desaguliers has proved that, when the resistance acts perpendicularly against the sides of the wedge, the power is to the whole resistance, as the thickness of the back is to the length of both the sides taken together. And the same proportion is adopted by Wallis (Op. Math. vol. i. p. 1016); Keill (Intr. ad Ver. Phys.); Gravesande (Elem. Math. lib. i. cap. 14), and by almost all the modern mathematicians. Gravesande, indeed, distinguishes the mode in which the wedge acts, into two cases, one in which the parts of a block of wood, &c. are separated farther than the edge has penetrated to, and the other in which they have not separated farther. See the work just mentioned: see also the treatises on Mechanics by Emerson and Gregory, and Ludlam's Essay on the Wedge.

Wedge-shaped leaf, in botany. Folium cuneiforme. Having the longitudinal diameter exceeding the transverse one, and narrowing gradually downwards: as in apium graveolens, saxifraga trydactylites.

WE'DLOCK. *s.* (ƿeꝺ and lac, Sax. marriage and gift.) Marriage; matrimony (*Cleaveland*).

WE'DNESDAY. *s.* (ƿoꝺenſꝺæᵹ, Saxon.) The fourth day of the weak, so named by the Gothic nations from *Woden* or *Odin*.

Wednesday (Ash), the first day of Lent. Some think the day received this name, or Dies cinerum, from the custom, in the early ages of the church, of penitents appearing in sackcloth and with ashes on their heads. But, however certain it is that such a practice prevailed, there is no evidence that it was done precisely on that day.

Indeed it is by no means certain who first added Ash-wednesday, and three other days, to the beginning of Lent, in the Roman church, to make the whole number forty. According to Chrysostom (Hom. 11. in Gen.) days of refreshment were allowed in the six weeks assigned to Lent in his time, reducing the fasting days to thirty-one, or, as bishop Gunning says, thirty-six. The four additional days are supposed by many to be the appointment of Gregory the Great; others ascribe them to Gregory the Second, who lived in the beginning of the eighth century. But one thing is clear, says Azorius, (Moral Instit. lib. vii. cap. 12.) that Lent had been observed more than six hundred years before Ash-wednesday was added.

WEE. *a.* (*weeing*, Dutch.) Little; small (*Shakspeare*).

WEE'CHELM. *s.* A species of elm (*Bac.*).

WEED. *s.* (ƿeoꝺ, Saxon, tares.) 1. An herb noxious or useless (*Mortimer*). 2. (ƿœꝺa, Saxon; *waed*, Dutch.) A garment; clothes; habit; dress (*Hooker*).

To Weed. *v. a.* (from the noun.) 1. To rid of noxious plants (*Mortimer*). 2. To take away as noxious plants (*Shakspeare*). 3. To free from any thing hurtful (*Howel*). 4. To root out vice (*Locke*).

WE'EDER. *s.* (from *weed.*) One that takes away any thing noxious (*Shakspeare*).

WE'EDHOOK. *s.* (*weed* and *hook.*) A hook by which weeds are extirpated (*Tusser*).

WE'EDLESS. *a.* (from *weed.*) Free from weeds; free from any thing useless or noxious (*Donne*).

WE'EDY. *a.* (from *weed.*) 1. Consisting of weeds (*Shakspeare*). 2. Abounding with weeds (*Dryden*).

WEEK. *s.* (ƿeoc, Sax; *weke*, Dutch; *wecka*, Swedish.) The space of seven days.

WE'EKDAY. *s.* (*week* and *day.*) Any day not Sunday (*Pope*).

WE'EKLY. *a.* (from *week.*) Happening or done once a week; hebdomadary (*Swift*).

We'ekly. *ad.* (from *week.*) Once a week; by hebdomadal periods (*Ayliffe*).

WEEL. *s.* (ƿœl, Saxon.) 1. A whirlpool. 2. A twiggen snare or trap for fish.

To WEEN. *v. n.* (ƿenan, Saxon.) To think; to imagine; to fancy: obsolete (*Spenser*).

To WEEP. *v. n.* preterit and participle passive *wept*, *weeped.* (ƿeopan, Saxon.) 1. To show sorrow by tears (*Deuteronomy*). 2. To shed tears from any passion (*Shakspeare*). 3. To lament; to complain (*Numbers*).

To Weep. *v. a.* 1. To lament with tears; to bewail; to bemoan (*Dryden*). 2. To shed moisture (*Milton*). 3. To drop (*Pope*). 4. To abound with wet (*Mortimer*).

WE'EPER. *s.* (from *weep.*) 1. One who sheds tears; a mourner (*Dryden*). 2. A white border on the sleeve of a mourning coat.

WE'ERISH. *a.* (See Wearish.) 1. Insipid; weak; washy. 2. Sour; surly (*Asch.*).

WEERT, a town of Dutch Brabant, taken by the French in 1794. It is 12 miles W. of Ruremonde. Lon. 5. 38 E. Lat. 51. 7 N.

To WEET. *v. n.* preterit *wot* or *wote.* (ƿıꞇan, Saxon; *weten*, Dutch.) To know; to be informed: obsolete (*Spenser*).

WE'ETLESS. *a.* (from *weet.*) Unknowing.

WEEVER, in ichthyology. See Trachinus.

Weever, a river, which rises in the N. part of Shropshire, runs across Cheshire, and receiving the Dane from the E., enters the estuary of the Mersey. It is navigable to Winsford, some miles above Northwich in Cheshire.

WEEVIL, in entomology. See Curculio.

WEFT. The old preterit and participle passive from *To wave* (*Spenser*).

Weft. *s.* (*guaive*, French; *vofa*, to wander, Islandic; *vagus*, Lat.) That of which the claim is generally waved; any thing wandering without an owner (*Ben Jonson*).

Weft. *s.* (ƿeꝼꞇa, Sax.) The woof of cloth.

WE'FTAGE. *s.* (from *weft.*) Texture.

WEIBSTADT, a town of Germany, in the bishopric of Spire, 20 miles S.E. of Heidelberg. Lon. 9. 23 E. Lat. 49. 19 N.

WEICHTERBACH, a town of Germany, in Weteravia, and in the county of Isenberg, seated on the river Kintz, with a castle, where the count resides.

WEIDEN, a town of Germany, in the upper palatinate of Bavaria, seated on the Nab, 10 miles N.W. of Leuchstenberg. Lon. 12. 10 E. Lat. 49. 34 N.

WEIGELIA, in botany, a genus of the class pentandria, order monogynia. Calyx five-leaved; corol funnel-form; style from the base of the germ; stigma peltate, one-seeded. Two species; shrubs of Japan.

To WEIGH. *v. a.* (ƿœʒan, Sax. *wayhen*, Dut.) 1. To examine by the balance (*Milton*). 2. To be equivalent to in weight (*Boyle*). 3. To pay, allot, or take by weight (*Zech.*). 4. To raise; to take up the anchor (*Knolles*). 5. To examine; to balance in the mind; to consider (*Clarendon*). 6. To compare by the scales (*Pope*). 7. To regard; to consider as worthy of notice (*Shakspeare*). 8. *To* Weigh *down.* To overbalance (*Dan.*). 9. *To* Weigh *down.* To overburden; to oppress with weight; to depress (*Addison*).

To Weigh. *v. n.* 1. To have weight (*Brown*). 2. To be considered as important (*Addison*). 3. To raise the anchor (*Dryden*). 4. To bear heavily; to press hard (*Shakspeare*). 5. To sink by its own weight (*Bacon*).

WE'IGHED. *a.* (from *weigh.*) Experienced.

WE'IGHER. *s.* (from *weigh.*) He who weighs.

WEIGHT. *s.* (ƿıhꞇ, Saxon.) 1. Quantity measured by the balance (*Arbuthnot*). 2. A mass by which, as the standard, other bodies are examined (*Swift*). 3. Ponderous mass (*Bacon*). 4. Gravity; heaviness; tendency to the centre (*Wilkins*). 5. Pressure; burden; overwhelming power (*Shakspeare*). 6. Importance; power; influence; efficacy; consequence; moment (*Locke*).

Weight, in commerce, denotes a body of a known weight, appointed to be put in the balance against other bodies, whose weight is required.

The security of commerce depending, in a good measure, on the justness of weights, which are usually of lead, iron, or brass, most nations have taken care to prevent the falsification of them, by stamping or marking them by proper officers, after being adjusted by some original standard. Thus in England, the standard of weights is kept in the Exchequer, by a particular officer, called the clerk of the market.

Weights and measures (Regulation of). This is a branch of the king's prerogative. For the public convenience, these ought to be universally the same throughout the nation, the better to reduce the prices of articles to equivalent values. But as weight and measure are things in their nature arbitrary and uncertain, it is necessary that they should be reduced to some fixed rule or standard. It is, however, impossible to fix such a standard by any written law or oral proclamation; as no person can, by words only, give to another an adequate idea of a pound weight, or foot rule. It is therefore expedient to have recourse to some visible, palpable, material standard, by forming a comparison with which all weights and measures may be reduced to one uniform size. Such a standard was anciently kept at Winchester; and we find in the laws of king Edgar, near a century before the conquest, an injunction that that measure should be observed throughout the realm.

Most nations have regulated the standard of measures of length from some parts of the human body; as the palm, the hand, the span, the foot, the cubit, the ell (ulna or arm), the pace, and the fathom. But as they are of different dimensions in men of different proportions, ancient historians inform us, that a new standard of length was fixed by our king Henry the First; who commanded that the ulna, or ancient ell, which answers to the modern yard, should be made of the exact length of his own arm.

A standard of long measure being once gained, all others are easily derived from it; those of greater length by multiplying that original standard, those of less by dividing it. Thus, by the statute called compositio ulnarum et perticarum, 5½ yards make a perch; and the yard is subdivided into three feet, and each foot into twelve inches, which inches will be each of the length of three barleycorns. But some, on the contrary, derive all measures by composition, from the barleycorn.

Superficial measures are derived by squaring those of length; and measures of capacity by cubing them.

The standard of weights was originally taken from grains or corns of wheat, whence our lowest denomination of weights is still called a grain; thirty-two of which are directed, by the statute called compositio mensurarum, to compose a pennyweight, twenty of which make an ounce, and twelve ounces a pound, &c.

Under king Richard the First it was ordained, that there should be only one weight and one measure throughout the nation; and that the custody of the assize or standard of weights and measures should be committed to certain persons in every city and borough; from whence the ancient office of the king's ulnager seems to have been derived. These original standards were called pondus regis, and mensura domini regis, and are directed by a variety of subsequent statutes to be kept in the Exchequer-chamber, by an officer called the clerk of the market, except the wine gallon, which is committed to the city of London, and kept in Guildhall.

The Scottish standards are distributed among the oldest boroughs. The elward is kept at Edinburgh, the pint at Stirling, the pound at Lanark, and the firlot at Linlithgow.

The two principal weights established in Great Britain are troy weight and avoirdupois weight, as before mentioned. Under the head of the former it may farther be added, that a carat is a weight of four grains; but when the term is applied to gold, it denotes the degree of fineness. Any quantity of gold is supposed divided into twenty-four parts. If the whole mass is pure gold, it is said to be twenty-four carats fine; if there are twenty-three parts of pure gold, and one part of alloy or base metal, it is said to be twenty-three carats fine, and so on.

Pure gold is too soft to be used for coin. The standard coin of this kingdom is 22 carats fine. A pound of standard gold is coined into 44½ guineas, and therefore every guinea should weigh 5 dwts. 9$\frac{32}{89}$ grains.

A pound of silver for coin contains 11 oz. 2 dwts. pure silver, and 18 dwts. alloy; and standard silver plate 11 ounces pure silver, with one ounce alloy. A pound of standard silver is coined into 62 shillings, and therefore the weight of a shilling should be 3 dwts. 20$\frac{22}{31}$ grains.

Weights may be distinguished into ancient and modern, foreign and domestic.

Ancient Weights.—1. Those of the ancient Jews, reduced to the English troy weights, will stand as in the following table:

			lb.	oz.	dwt.	gr.
Shekel			00	00	09	02$\frac{4}{7}$
60	Maneh		02	03	06	10$\frac{2}{7}$
3000	50	Talent	113	10	01	10$\frac{2}{7}$

2. Grecian and Roman weights, reduced to English troy weight, will stand as in the following table:

										oz.	dwt.	gr.
Lentes										00	00	$\frac{85}{112}$
4	Siliquæ									00	00	03$\frac{1}{28}$
12	3	Obolus								00	00	09$\frac{3}{28}$
24	6	2	Scriptulum							00	00	18$\frac{3}{14}$
72	18	6	3	Drachma						00	02	06$\frac{9}{14}$
96	24	8	4	1$\frac{1}{3}$	Sextula					00	03	00$\frac{6}{7}$
144	56	12	6	2	1$\frac{1}{2}$	Sicilicus				00	04	13$\frac{2}{7}$
192	48	16	8	2$\frac{2}{3}$	2	1$\frac{1}{3}$	Duella			00	06	01$\frac{5}{7}$
576	144	48	24	8	6	4	3	Uncia		00	18	05$\frac{1}{7}$
6912	1728	576	288	96	72	48	36	12	Libra	10	18	13$\frac{5}{7}$

The Roman ounce is the English avoirdupois ounce, which they divided into seven denarii, as well as eight drachms: and since they reckoned their denarius equal to the Attic drachm, this will make the Attic weights one-eighth heavier than the corresponding Roman weights.

Modern European Weights.—1. English weights: By the twenty-seventh chapter of Magna Charta, the weights all over England are to be the same; but for different commodities, there are two different sorts, viz. Troy weight and avoirdupois weight. The origin from which they are both raised is a grain of wheat gathered in the middle of the ear.

In troy weight, twenty-four of these grains make one pennyweight sterling; twenty pennyweights make one ounce; and twelve ounces one pound.

By this weight we weigh gold, silver, jewels, and liquors. The apothecaries also use the troy pound, ounce, and grain; but they differ from the rest in the intermediate divisions. They divide the ounce into eight drachms; the drachm into three scruples, and the scruple into twenty grains.

In avoirdupoise weight the pound contains sixteen ounces, but the ounce is less by near one-twelfth than the troy ounce; this latter containing 490 grains, and the former only 448. The ounce contains 16 drachms; 80 ounces avoirdupois are only equal to 73 ounces troy; and 17 pounds troy equal to 14 pounds avoirdupois.

By avoirdupois weight are weighed mercury, and grocery wares, base metals, wool, tallow, hemp, drugs, bread, &c.

WEIGHTS.

Table of Troy Weight as used by the Goldsmiths.

Grains.			
24	Pennyweight.		
480	20	Ounce.	
5760	240	12	Pound.

Apothecaries.

Grains.				
20	Scruple.			
60	3	Drachm.		
480	24	8	Ounce.	
5760	288	96	12	Pound.

Table of Avoirdupois Weight.

Scruples.					
3	Dram.				
24	8	Ounce.			
384	128	16	Pound.		
43008	14336	1792	112	Quintal, or hundred.	
860160	286720	35840	2240	20	Ton.

Mr. Ferguson gives the following comparison between troy and avoirdupois weight.

175 troy pounds are equal to 144 avoirdupois pounds.

175 troy ounces are equal to 192 avoirdupois ounces.

1 troy pound contains 5760 grains.
1 avoirdupois pound contains 7000 grains.
1 avoirdupois ounce contains 437½ grains.
1 avoirdupois dram contains 27.34375 grains.
1 troy pound contains 13 oz. 2.651428576 drams avoirdupois.
1 avoirdupois lb. contains 1 lb. 2 oz. 11 dwts. 16 gr. troy.

Therefore the avoirdupois lb. is to the lb. troy as 175 to 144, and the avoirdupois oz. is to the troy oz. as 437½ is to 480.

The moneyers, jewellers, &c. have a particular class of weights for gold and precious stones, viz. carat and grain; and for silver, the pennyweight and grain. The moneyers have also a peculiar subdivision of the troy grain: thus, dividing

the grain into 20 mites,
the mite into 24 droits,
the droit into 20 periots,
the periot into 24 blanks.

The dealers in wool have likewise a particular set of weights; viz. the sack, weigh, tod, stone, and clove; the proportions of which are as below; viz.

the sack containing	2	weighs,
the weigh	6½	tods,
the tod.	2	stones,
the stone	2	cloves,
the clove	7	pounds.

Also 12 sacks make a last, or 4368 pounds.

Farther,
56 lb. of old hay, or 60 lb. new hay, make a truss.
40 lb. of straw make a truss.
36 trusses make a load, of hay or straw.
14 lb. make a stone.
5 lb. of glass a stone.

Other nations have also certain weights peculiar to themselves: thus, Spain has its arrobas, containing 25 Spanish pounds, or one-fourth of the common quintal: its quintal macho, containing 150 pounds, or one-half common quintal, or 6 arrobas: its adarme, containing one-sixteenth of its ounce. And for gold, it has its castillan, or one-hundredth of a pound; and its tomin, containing 12 grains, or one-eighth of a castillan. The same are in use in the Spanish West Indies.

Portugal has its arroba, containing 32 Lisbon arratals, or pounds: Savary also mentions its faratelle, containing 2 Lisbon pounds; and its rottolis, containing about 12 pounds. And for gold, its chego, containing four carats. The same are used in the Portuguese East Indies.

Italy, and particularly Venice, have their migliaro, containing four mirres; the mirre containing 30 Venice pounds; the saggio, containing a sixth part of an ounce. Genoa has five kinds of weights, viz. large weights, whereby all merchandizes are weighed at the custom-house; cash weights for piastres, and other specie; the cantara, or quintal, for the coarsest commodities; the large balance for raw silks, and the small balance for the fine commodities. Sicily has its rottolo, 32 and a half pounds of Messina.

Germany, Flanders, Holland, the Hanse towns, Sweden, Denmark, Poland, &c. have their schippondt, which at Antwerp and Hamburgh is 300 pounds; at Lubeck, 320; and at Coningsberg, 400 pounds. In Sweden, the schippondt for copper is 320 pounds; and the schippondt for provisions 400 pounds. At Riga and Revel, the schippondt is 400 pounds; at Dantzic, 340 pounds; in Norway, 300 pounds; at Amsterdam, 300; containing 20 lyspondts, each weighing 15 pounds.

In Muscovy, they weigh their large commodities by the bercheroct, or berkewits, containing 400 of their pounds. They have also the poet or poede, containing 40 pounds, or one-tenth of the bercheroct.

In order to shew the proportion of the several weights used throughout Europe, we shall add a reduction of them to one standard, viz. the London and Amsterdam pound.

1. Proportion of the weights of the principal places of Europe.

The 100 lb. of England, Scotland, and Ireland, are equal to

lb.	oz.	
91	8	of Amsterdam, Paris, &c.
96	8	of Antwerp or Brabant.
88	0	of Rouen, the viscounty weight.
106	0	of Lyons, the city weight.
90	9	of Rochelle.

lb.	oz.	
107	11	of Toulouse and Upper Languedoc.
113	0	of Marseilles or Provence.
81	7	of Geneva.
93	5	of Hamburgh.
89	7	of Francfort, &c.
96	1	of Leipsic, &c.
137	4	of Genoa.
182	11	of Leghorn.
153	11	of Milan.
152	0	of Venice.
154	10	of Naples.
97	0	of Seville, Cadiz, &c.
104	13	of Portugal.
96	5	of Liege.
112	⅔	of Russia.
107	$\frac{1}{24}$	of Sweden.
89	½	of Denmark.

2. Proportion of the weights of the chief cities in Europe, to those of Amsterdam.

100 pounds of Amsterdam are equal to

lb.	
108	of Alicant.
105	of Antwerp.
120	of Archangel, or 3 poedes.
105	of Arschot.
120	of Avignon.
98	of Basil in Switzerland.
100	of Bayonne in France.
166	of Bergamo.
97	of Bergen-op-Zoom.
95¾	of Bergen in Norway.
111	of Bern.
100	of Besançon.
100	of Bilboa.
105	of Bois le duc.
151	of Bologna.
100	of Bourdeaux.
104	of Bourg en Bresse.
103	of Bremen.
125	of Breslaw.
105	of Bruges.
105	of Brussels.
105	of Cadiz.
105	of Cologne.
125	of Coningsberg.
107½	of Copenhagen.
87	rottos of Constantinople.
113½	of Dantzic.
100	of Dort.
97	of Dublin.
97	of Edinburgh.
143	of Florence.
98	of Francfort on the Maine.
105	of Gaunt.
89	of Geneva.
163	of Genoa, cash weight.
102	of Hamburgh.
106	of Leyden.
105	of Leipsic.
105½	of Liege.
114	of Lisle.
143	of Leghorn.
106½	of Lisbon.
109	of London, avoirdupois weight.
105	of Lovaine.
105	of Lubec.
141½	of Lucca, light weight.
110	of Lyons, city ditto.
114	of Madrid.
105	of Marlines.
123½	of Marseilles.
154	of Messina, light weight.
168	of Milan.
120	of Montpelier.
125	bercherocts of Muscovy.
100	of Nantes.
106	of Nancy.
169	of Naples.
98	of Nuremberg.
100	of Paris.
112½	of Revel.
109	of Riga.
100	of Rochelle.
146	of Rome.
100	of Rotterdam.
96	of Rouen, viscounty weight.
100	of St. Malo.
100	of St. Sebastian.
158½	of Saragossa.
106	of Seville.
114	of Smyrna.
110	of Stetin.
81	of Tholouse and Upper Languedoc.
151	of Turin.
158½	of Valencia.
182	of Venice, small weight.

We shall now notice the correspondence between English weights and some modern weights in France and other countries:

English Weights.

Troy Weight.

lb.	oz.	drms.	scruples.	grains.	grammes.
1 =	12 =	96 =	283 =	5760 =	372.96
	1 =	8 =	24 =	480 =	31.08
		1 =	3 =	60 =	3.885
			1 =	20 =	1.395
				1 =	0.06475

Avoirdupois Weight.

lb.	oz.	drms.	grains.	grammes.
1 =	16 =	256 =	7000 =	453.25
	1 =	16 =	437.5 =	28.32
		1 =	27.975 =	1.81

German.

71 lbs. or grs. English troy, = 74 lbs. or grs. German apothecaries' weight.

1 oz. Nuremberg, medic. weight, = 7 dr. 2 sc. 9 grains English.

1 mark Cologne, = 7 oz. 2 dwt. 4 gr. English troy.

Dutch.

1 lb. Dutch, = 1 lb. 3 oz. 16 dwt. 7 gr. English troy.

787½ lbs. Dutch, = 1038 lbs. English troy.

Swedish Weights, used by Bergman and Scheele.

The Swedish pound, which is divided like the English apothecary, or troy, pound, weighs 6556 grains troy.

The kanne of pure water, according to Bergman, weighs 42250 Swedish grains, and occupies 100 Swedish cubical inches. Hence the kanne of pure water weighs 48088.719444 English troy grains, or is equal to 189.9413 English cubic inches; and the Swedish longitudinal inch is equal to 1.238435 English longitudinal inches.

From these data, the following rules are deduced:

1. To reduce Swedish longitudinal inches to English, multiply by 1.2384, or divide by 0.80747.

2. To reduce Swedish to English cubical inches, multiply by 1.9, or divide by 0.5265.

3. To reduce the Swedish pound, ounce, dram, scruple, or grain, to the corresponding English troy denomination, multiply by 1.1382, or divide by 8.786.

4. To reduce the Swedish kannes to English wine pints, multiply by .1520207, or divide by 6.57804.

5. The lod, a weight sometimes used by Bergman, is the 32d part of the Swedish pound: Therefore, to reduce it to the English troy pound, multiply by .03557, or divide by 28.1156.

Correspondence of English Weights with those used in France before the Revolution.

The Paris pound, poids de marc of Charlemagne, contains 9216 Paris grains; it is divided into 16 ounces, each ounce into 8 gros, and each gros into 72 grains. It is equal to 7561 English troy grains.

The English troy pound of 12 ounces contains 5760 English troy grains, and is equal to 7021 Paris grains.

The English avoirdupois pound of 16 ounces contains 7000 English troy grains, and is equal to 8538 Paris grains.

To reduce Paris grains to English troy grains, divide by……… }
To reduce English troy grains to Paris grains, multiply by…… } 1.2189
To reduce Paris ounces to English troy, divide by…………… }
To reduce English troy ounces to Paris, multiply by………… } 1.015734

Or the conversion may be made by means of the following tables:

I. *To reduce French to English Troy Weight.*

The Paris pound.. =	7561	English troy grains.
The ounce……=	472.5625	
The gros……… =	59.0703	
The grain……… =	.8204	

II. *To reduce English Troy to Paris Weight.*

The English troy pound of 12 ounces…………… =	7021.	Paris grains.
The troy ounce…………… =	585.0893	
The dram of 60 grains…… =	73.1354	
The pennyweight or denier, of 24 grains………… =	29.2541	
The scruple of 20 grains….. =	24.3784	
The grain……………… =	1.2189	

III. *To reduce English Avoirdupois to Paris Weight.*

The avoirdupois pound of 16 ounces, or 7000 troy grains……………… =	8538.	Paris grs.
The ounce……………… =	533.6250	

Table, skewing the Comparison between French and English Grains. (Poid de Marc.)

French grs.	= Eng. grs.	Eng. grs.	= French grs.
1	0.8203	1	1.2189
2	1.6407	2	2.4378
3	2.4611	3	3.6568
4	3.2815	4	4.8757
5	4.1019	5	6.0947
6	4.9223	6	7.3136
7	5.7427	7	8.5325
8	6.5631	8	9.7515
9	7.3835	9	10.9704
10	8.203	10	12.189
20	16.407	20	24.378
30	24.611	30	36.568
40	32.815	40	48.757
50	41.019	50	60.947
60	49.223	60	73.136
70	57.427	70	85.325
80	65.631	80	97.515
90	73.835	90	109.704
100	82.03	100	121.89
200	164.07	200	243.78
300	246.11	300	365.68
400	328.15	400	487.57
500	410.19	500	609.47
600	492.23	600	731.36
700	574.27	700	853.25
800	656.31	800	975.15
900	738.35	900	1097.04
1000	820.3	1000	1218.9
2000	1640.7	2000	2437.8
3000	2461.1	3000	3656.8
4000	3281.5	4000	4875.7
5000	4101.9	5000	6094.7
6000	4922.3	6000	7313.6
7000	5742.7	7000	8532.5
8000	6563.1	8000	9751.5
9000	7383.5	9000	10970.4
10,000	8203.0	10,000	12189.0

New French Weights (calculated by Dr. Duncan, jun.).

	English grains.		Avoirdupois. lb.	oz.	dr.
Milligramme… =	.0154				
Centigramme.. =	.1544				
Decigramme… =	1.5444				
Gramme…… =	15.4440				
Decagramme… =	154.4102	=	0	0	5.65
Hecatogramme =	1544.4023	=	0	3	8.5
Kilogramme… =	15444.0234	=	2	3	5
Myriogramme.. =	154440.2344	=	22	1	2

Weights used in the several parts of Asia, the East Indies, China, Persia, &c.—In Turkey, at Smyrna, &c. they use the batman, or battemant, containing six occos, the occo weighing three pounds four-fifths English. They have another batman much less, consisting, as the former, of six occos; but the occo only containing fifteen ounces English; 44 occos of the first kind make the Turkish quintal. At Cairo, Alexandretta, Aleppo, and Alexandria, they use the rotto, rotton, or rottoli; at Cairo, and other parts of Egypt, it is 144 drachms, being somewhat over an English pound. At Aleppo there are three sorts of rottos; the first 720 drachms, making about seven pounds English, and serving to weigh cottons, galls, and other large commodities; the second is 624 drachms, used for all silks but white ones, which are weighed by the third rotto of 700 drachms. At Seyda the rotto is 600 drachms.

The other ports of the Levant, not named here, use some of these weights, particularly the occo, or ocqua, the rottoli, and rotto.

The Chinese weights are the piece, for large commodities; it is divided into 100 catis, or cattis, though some say into 125; the cati into 16 taels, or tales, each tale equivalent to 1$\frac{1}{3}$ of an ounce English, or the weight of one rial and $\frac{1}{12}$, and containing 12 mas, or masses, and each mas 10 condrins. So that the Chinese piece amounts to 137 pounds English avoirdupois, and the cadi to 1 pound 8 ounces. The picol for silk contains 66 catis and ¾: the bahar, bakaire, or barr, contains 300 catis.

Tonquin has also the same weights, measures, &c. as China. Japan has only one weight, viz. the cati, which, however, is different from that of China, as containing 20 taels. At Surat, Agra, and throughout the states of the Great Mogul, they use the man, or maund, whereof they have two kinds, the king's man, or king's weight, and the man simply; the first used for the weighing of common provisions, containing 40 seers, or seres, and each seer a just Paris pound. The common man, used in the weighing of merchandise, consists likewise of 40 seers, but each seer is only estimated at 12 Paris ounces, or ¾ of the other seer.

The man may be looked on as the common weight of the East Indies, though under some difference of name, or rather of pronunciation, it being called mao at Cambaya, and in other places mein, and maun. The seer is properly the Indian pound, and of universal use; the like may be said of the bahar, tael, and catti abovementioned.

The weights of Siam are the piece containing two shans, or cattis; but the Siamese catti is only half the Japanese, the latter containing 20 taels, and the former only 10; though some make the Chinese catti only 16 taels, and the Siamese 8. The tael contains 4 baats or ticals, each about a Paris ounce; the baat 4 selings, or mayons; the mayon 2 fouangs; the fouang 4 payes; the paye 2 clams; the sompaye half a fouang.

It is to be observed, that these are the names of their coins as well as weights; silver and gold being commodities there sold, as other things, by their weights.

In the isle of Java, and particularly at Bantam, they use the gantan, which amounts to near three Dutch pounds. In Golconda, at Visapour, and Goa, they have the furatelle, containing 1 pound 14 ounces English; the mangalis or mangelin for weighing diamonds and precious stones, weighing at Goa 5 grains, at Golconda, &c. 5½ grains. They have also the rotolo, containing 14½ ounces English; the metricol, containing the sixth part of an ounce; the wall for piasters and ducats, containing the 73d part of a rial.

In Persia they use two kinds of batmans or mans, the one called cahi or cheray, which is the king's weight; and the other batman of Tauris. The first weighs 13 pounds 10 ounces English; the second 6½ pounds. Its divisions are the ratel, or a 16th; the derhem, or drachm, which is the 50th; the meschal, which is half the derhem; the dung, which is the 6th part of the meschal, being equivalent to six caret-grains; and, lastly, the grain, which is the fourth part of the dung. They have also the vakie, which exceeds a little our ounce; the sah-cheray, equal to the 1170th part of the derhem; and the toman, used to weigh out large payments of money without telling; its weight is that of 50 abassis.

African and American weights. We have little to say as to the weights of America; the several European colonies there making use of the weights of the states or kingdoms of Europe they belong to. For, as to the aroue of Peru, which weighs 27 pounds, it is evidently no other than the Spanish arroba, with a little difference in the name.

As to the weights of Africa, there are few places that have any, except Egypt, and the countries bordering on the Mediterranean, whose weights have been already enumerated among those of the ports of the Levant. The island of Madagascar indeed has weights, but none that exceed the drachm, nor are they used for any thing but gold and silver.

WEIGHTS AND MEASURES. The standard of measures was originally kept at Winchester, which measure was, by the law of king Edgar, ordained to be observed through the kingdom.

By stat. 35 G. III. c. 102, the justices in quarter sessions in every county are required to appoint persons to examine the weights and balances within their respective jurisdictions. These inspectors may seize and examine weights in shops, &c. and seize false weights and balances; and the offender, being convicted before one justice, shall be fined from 5s. to 20s. Persons obstructing the inspectors to forfeit from 5s. to 40s. Inspectors to be recompensed out of the county-rate. Standard weights to be purchased by the sessions out of the county-rate, and produced to all persons paying for the production thereof. Informations to be within one month.

WEIGHT TO THE SCALE, in horse-racing. Bringing the proper weight to the scale immediately after each heat, is in racing a very important consideration. Whatever weight by the conditions, whether in plate, match, sweepstakes, or subscription, a horse is appointed to carry, the rider or jockey must have assertained before the stewards, or clerk of the course, by the scales and weights publicly affixed to the starting-post of every race ground for that purpose. As soon as every heat is ended, such rider or jockey is to ride his horse up to the scales, there to be weighed in succession; and any rider or jockey neglecting so to do, dismounting before he reaches the scale, or not bringing his full weight when there, the horse in either case is deemed equally distanced, and can start no more.

WEIGHT FOR AGE; a frequent phrase upon the turf. In racing advertisements, proposals of various kinds appear in respect to the weights which are to be carried by horses a year younger or older than others. Such advertisements vary, in some degree, between the weights of one place of sport and another; but as the gold cup weights at Oxford are considered a fair criterion, they are here introduced in explanation.

	st.	lb.
Four year olds carry -	7	7
Five year olds - -	8	7
Six year olds - - -	9	0
And aged - - -	9	4

WEIGHT FOR INCHES. When a plate is advertised to be run for by horses "to carry weight for inches," it is then called a GIVE AND TAKE PLATE, which see.

WEIGHTILY. *ad.* (from *weighty.*) 1. Heavily; ponderously. 2. Solidly; importantly (*Broome*).

WEIGHTINESS. *s.* (from *weighty.*) 1. Ponderosity; gravity; heaviness. 2. Solidity; force (*Locke*). 3. Importance (*Hayward*).

WE'IGHTLESS. *a.* (from *weight.*) Light; having no gravity (*Sandys*).

WE'IGHTY. *a.* (from *weight.*) 1. Heavy; ponderous (*Dryden*). 2. Important; momentous; efficacious (*Swift*). 3. Rigorous; severe: not used (*Shakspeare*).

WEIL, or WYL, a free imperial town of Suabia, in the duchy of Wirtemburg. The inhabitants are Roman catholics. It is seated on the Worm, twelve miles west of Stutgard, and twenty north of Tubingen. Lon. 8. 50 E. Lat. 48. 46 N.

WEILBURG, a town of Germany, in the circle of Upper Rhine, and county of Nassau. It is seated on the Lahn, 22 miles N.E. of Nassau, 22 N.W. of Francfort, and 29 E. of Mentz. Lon. 8. 26 E. Lat. 50. 18 N.

WEIMAR, a town of Upper Saxony, in Thuringia, with a magnificent castle, the residence of the duke of Saxe Weimar. It is seated on the Ilm, 20 miles N.E. of Erfurt, and twenty W.S.W. of Naumburg. Lon. 11. 52 E. Lat. 51. 6 N.

WEINGARTIN, a town of Germany, in the palatinate of the Rhine, seated on the Printza, four miles N.E. of Dourlach, and nine south of Philipsburg. Lon. 9. 30 E. Lat. 49. 5 N.

WEINHEIM, a town of Germany, in the palatinate of the Rhine, 10 miles N. of Heidelberg. Lon. 8. 46 E. Lat. 49 35 N.

WEINMANNIA, in botany, a genus of the class octandria, order digynia. Calyx four-leaved: corol four-petalled: capsule two-celled, two-beaked. Seven species: trees of the West Indies, Cape, or Australasia.

WEISBADEN, a town of Germany, in the electorate of Mentz, where there are hot baths in high esteem. It is eight miles N.E. of Mentz, and 15 W. of Francfort. Lon. 8. 20 E. Lat. 49. 56 N.

WEISBRAIN. See VESPERIN.

WEISELMUNDE, a fortress of Western Prussia; seated at the mouth of the Vistula, below Dantzic, whose harbour it defends. Lon. 18. 40 E. Lat. 54. 24 N.

WEISSEMBURG, a town of France, in the department of Lower Rhine. Between this place and Lauterburg are the famous lines from which the French drove the Austrians in 1744; and, in 1793, the Prussians drove the French from the same situation. It is seated on the Lauter, 10 miles S.W. of Landau, and 22 N.E. of Strasburg. Lon. 8. 11 E. Lat. 48. 53 N.

WEISSEMBURG, a free imperial town of Franconia, in the bishopric of Aichstadt. The inhabitants are protestants. It is seated on the Rednith, five miles N. of Pappenheim, and 30 S.W. of Nuremburg. Lon. 11. 2 E. Lat. 49. 4 N.

WEISSEMBURG, a town of Germany, in the duchy of Saxony, 20 miles N. by W. of Wittemburg, and 20 N.E. of Deslaw. Lon. 12. 31 E. Lat 52. 8 N.

WEISSEMBURG, or ALBA JULIA, a city of Transylvania, capital of a county of the same name, with a bishop's see, and a university. It is seated on the side of a hill, near the river Ompias, 35 miles W. of Hermanstadt. Lon. 24. 0 E. Lat. 45. 26 N.

WEISSEMBURG, or STUHLWEISSEMBURG, a town of Lower Hungary, seated at the E. end of the Platten See, 36 miles S.W. of Buda. Lon. 18. 30 E. Lat. 47. 22 N.

WEISSENFELS, a town of Upper Saxony, in Thuringia. Upon a white rock, above the town, is a fine citadel, called Augustusburg. It is seated on the Saal, 17 miles S.W. of Leipsic.

WEISSENHORN, a town and castle of Suabia, in a county of its name, seated on the Roth, 10 miles S.E. of Ulm, and 28 W. of Augsburg.

WEISSENSEE, a town of Upper Saxony, in Thuringia, with a superintendency and commandery of the knights of Malta. The lake formerly in its neighbourhood was drained, and converted into arable land in 1705. It is 21 miles N.E. of Langensalza.

WE'LAWAY. *interj.* (palapa, *woe on woe*, Saxon.) Alas (*Spenser*).

WE'LCOME. *a.* (pilcume, Saxon, *welkom*, Dutch.) 1. Received with gladness; admitted willingly; grateful; pleasing (*Locke*). 2. *To bid* WELCOME. To receive with professions of kindness (*Bacon*).

WE'LCOME. *interj.* A form of salutation used to a new comer, elliptically used for *you are welcome* (*Dryden*).

WE'LCOME. *s.* 1. Salutation of a new comer (*Shakspeare*). 2. Kind reception of a new comer (*South*).

To WE'LCOME. *v. a.* To salute a new comer with kindness (*Bacon*).

WE'LCOME TO OUR HOUSE. *s.* An herb (*Ainsworth*).

WE'LCOMENESS. *s.* Gratefulness (*Boyle*).

WE'LCOMER. *s.* (from *welcome.*) The saluter or receiver of a new comer (*Shaks.*).

WELD, in botany. See RECEDA.

To WELD, for *To wield* (*Spenser*).

To WELD. *v. a.* To beat one mass into another so as to incorporate them (*Moxon*).

WELDING, in the metallic arts, an intimate union produced between the surfaces of two pieces of malleable metal, when heated almost to fusion, and hammered. This union is so strong, that when two bars of metal are properly welded, the place of junction is as strong, relatively to its thickness, as any other part of the bar. Only two of the old metals, however, are capable of firm union by welding, namely platina and iron; yet the same property belongs to the newly discovered metals, potassium and sodium.

WELDON, a town in Northamptonshire, with a market on Wednesday, eight miles W. of Oundle, and 83 N.N.W. of London.

WE'LFARE. *s.* (*well* and *fare.*) Happiness; success; prosperity (*Addison*).

To WELK. *v. a.* To cloud; to obscure (*Spenser*).

WE'LKED. *a.* Set with protuberances: properly, Johnson believes, *whelked*, from *whelk* (*Shakspeare*).

WE'LKIN. *s.* (pealcan, to roll, or pelcen, clouds, Saxon.) The visible regions of the air (*Chaucer. Philips*).

WELL. *s.* (pelle, pœll, Saxon.) 1. A spring; a fountain; a source (*Davies*). 2. A deep narrow pit of water (*Dryden*). 3. The cavity in which stairs are placed.

To WELL. *v. n.* (peallan, Saxon.) To spring; to issue as from a spring (*Spenser*).

To WELL. *v. a.* To pour any thing forth (*Spenser*).

WELL. *a.* 1. Not sick; being in health (*Taylor*). 2. Happy (*Sprat*). 3. Convenient; advantageous (*Locke*). 4. Being in favour (*Dryden*). 5. Recovered from any sickness or misfortune (*Collier*).

WELL. *ad.* (pell, Saxon; *wel*, Dutch.) 1. Not ill; not unhappily (*Prior*). 2. Not ill; not wickedly (*Milton*). 3. Skilfully; properly (*Wotton*). 4. Not amiss; not unsuccessfully (*Knolles*). 5. Not insufficiently; not defectively (*Bacon*). 6. To a degree that gives pleasure (*Bacon*). 7. With praise; favourably (*Pope*). 8. Conveniently; suitably (*Milton*). 9. *As* WELL *as*. Together with; not less than (*Arbuthnot*). 10. WELL *enough*. In a moderate degree; tolerably. 11. WELL *is him*. He is happy (*Ecclus*). 12. WELL *nigh*. Nearly; almost (*Milton*). 13. It is used much in composition, to express any thing right, laudable, or not defective.

WE'LLADAY. *interj.* (a corruption of *welaway*.) Alas! (*Shakspeare*).

WELLAND, a river which rises in Northamptonshire, and separates that county from Leicestershire, Rutlandshire, and Lincolnshire: it passes by Market Deeping to Stamford, and is thence navigable to the Fossdike Wash, which it enters below Spalding.

WELLBEING. *s.* (*well* and *be*.) Happiness; prosperity (*South*).

WELLBO'RN. *a.* Not meanly descended (*Dryden*).

WELLBRE'D. *a.* (*well* and *bred*.) Elegant of manners; polite (*Pope*).

WE'LLDONE. *interj.* A word of praise (*Matthew*).

WE'LLFARE. *s.* (*well* and *fare*.) Happiness; prosperity (*Holyday*).

WELLFA'VOURED. *a.* (*well* and *favour*.) Beautiful; pleasing to the eye (*Shakspeare*).

WELLINGBOROUGH, a town in Northamptonshire, with a market on Wednesday. Here are manufactures of shoes and lace, and near it is a fine chalybeate spring called Redwell. A fire happened here in 1738, which consumed above 800 houses. It is seated on the side of a hill, on the river Nen, 12 miles N.E. of Northampton, and 67 N. by W. of London.

WELLINGTON, a town in Shropshire, with a market on Thursday. In the neighbourhood are founderies, iron mines, and coal works. It is seated near Wrekin hill, 12 miles E. of Shrewsbury, and 150 N.W. of London.

WELLINGTON, a town in Somersetshire, with a market on Thursday, and manufactures of serges, druggets, and earthen ware. It is seated on the Tone, 15 miles N.E. of Exeter, and 148 W. by S. of London.

WELLME'T. *interj.* (*well* and *met*.) A term of salutation (*Shakspeare*).

WE'LLNATURED. *a.* (*well* and *nature*.) Good-natured; kind (*Denham*).

WELLNI'GH. *ad.* Almost (*Sprat*).

WELLS, a city in Somersetshire, governed by a mayor, with a market on Wednesday and Saturday. It is seated at the foot of a hill, and has its name from the wells and springs about it; and is a bishop's see, jointly with Bath. The cathedral is a stately pile; and the bishop's palace is like a castle, being surrounded by walls and a moat. The city is well built and neatly paved, with manufactures of knit worsted stockings. The summer assizes are held here alternately with Bridgewater. It is 16 miles S. of Bristol, and 120 W. of London. Lon. 2. 37 W. Lat. 51. 12 N.

WELLS, a town in Norfolk, which has a large church, and a considerable corn trade. It stands near the sea, 27 miles N. by E. of Swaffham, and 118 N.N.E of London.

WELLS, a town of the district of Maine, in York county, on a bay of its name, 88 miles N. by E. of Boston. Lon. 70. 52 W. Lat. 43. 20 N.

WELLS, a town of W. Florida, on the W. side of St. Andrew bay, 60 miles W. of St. Marco. Lon. 85. 50 W. Lat. 30. 24 N.

WELLSPE'NT. *a.* Passed with virtue (*Calamy*).

WE'LLSPRING. *s.* (pœllȝerpꞃıȝ, Saxon.) Fountain; source (*Hooker*).

WELLWI'LLER. *s.* (*well* and *willer*.) One who means kindly (*Hooker*).

WELLWI'SH. *s.* (*well* and *wish*.) A wish of happiness (*Addison*).

WELLWI'SHER. *s.* (from *wellwish*.) One who wishes the good of another (*Pope*).

WELSHPOOL, a corporate town of Wales, in Montgomeryshire, with a market on Monday. It is the great mart for Welsh cottons, flannels, &c. which are sent hence to Shrewsbury. Near the town are the remains of Powis castle, a large structure, built on an eminence. It is seated in a rich vale, on the river Severn, nine miles N. of Montgomery, 19 W. of Shrewsbury, and 176 N.W. of London.

WELT. *s.* A border; a guard; an edging (*Ben Jonson*).

To WELT. *v. a.* (from the noun.) To sew any thing with a border.

To WE'LTER. *v. n.* (pealtan, Saxon.) 1. To roll in water or mire (*Dryden*). 2. To roll voluntarily; to wallow (*Ascham*).

WELWYN, a village in Hertfordshire, five miles N. of Hatfield. Dr. Young was rector of this place, and here composed his Night Thoughts.

WEM, a town in Shropshire, with a market on Thursday, seated on the Roden, nine miles N. of Shrewsbury, and 172 N.W. of London.

WEMM. *s.* (ƿem, Saxon.) A spot; a scar (*Brerewood*).

WEN. *s.* (ƿen, Saxon.) A fleshy or callous excrescence or protuberance. See NÆVUS.

WENCH. *s.* (ƿencle, Saxon.) 1. A young woman (*Sidney*). 2. A young woman in contempt (*Prior*). 3. A strumpet (*Spectator*).

To WENCH. *v. n.* (from the noun.) To frequent loose women (*Addison*).

WE'NCHER. *s.* (from *wench.*) A fornicator (*Grew*).

To WEND. *v. n.* pret. *went.* (ƿenꝺan, Sax.) 1. To go; to pass to or from (*Arbuthnot*). 2. To turn round (*Raleigh*).

WENDOVER, a borough in Buckinghamshire, with a market on Thursday, seven miles S. E. of Aylesbury, and 35 W. by N. of London.

WENLOCK, or MUCH WENLOCK, a borough in Shropshire, with a market on Monday, 12 miles S.E. of Shrewsbury, and 148 N.W. of London.

WENNEL. *s.* (corrupted from *weanel.*) An animal newly taken from the dam (*Tusser*).

WENNER, the largest lake of Sweden, lying in W. Gothland, to the N.W. of the lake Wetter. It is 100 miles in length, and in some places 40 in breadth, and contains several islands. It receives twenty-four rivers, and its only outlet is the river Gotha.

WENNERSBORG, a town of Sweden, in W. Gothland, with a castle. It is the staple for all the iron sent from the province of Wermeland to Gotheburg, and seated on the Gotha, near the S.W. extremity of the lake Wenner, 50 miles N. by E. of Gotheburg.

WE'NNY. *a.* (from *wen.*) Having the nature of a wen (*Wiseman*).

WENT. *preterit.* See WEND and GO.

WENTLE-TRAP, in helminthology. See TURBO.

WENTWORTH, a village in Yorkshire, three miles N.W. of Rotherham. Here is Wentworth-house, a noble seat built by the late marquis of Rockingham, and now belonging to earl Fitzwilliam.

WEOBLEY, a borough in Herefordshire, with a market on Tuesday, and famous for its excellent ale. The site of its ancient castle is now a bowling-green. It is eight miles N.W. of Hereford, and 147 W.N.W. of London.

WEPT. The preterit and participle of *weep.*

WERDENBERG, a fortified town of Swisserland, capital of a bailiwic, in the canton of Glarus, with a castle on an eminence. It is seated near the Rhine, 10 miles S.S.E. of Appenzel, and 26 E.N.E. of Glarus. Lon. 9. 25 E. Lat. 46. 58 N.

WERE. of the verb *to be.* The plural in all persons of the indicative imperfect, and all persons of the subjunctive imperfect except the second, which is *wert.*

WERE. *s.* A dam. See WEAR (*Sidney*).

WEREGILD, the price of homicide; paid partly to the king for the loss of a subject, partly to the lord whose vassal he was, and partly to the next of kin of the person slain.

WERLE, a town of Westphalia, in the bishopric of Munster, seated on the river Sisek, 30 miles S. of Munster. Lon. 7. 20 E. Lat. 51. 35 N.

WERMELAND, or WARMELAND, a province of Sweden, in W. Gothland, 100 miles long, and 50 broad; bounded on the N. by Dalecarlia, on the E. by Westmania and Nericia, on the S. by the lakes Wenner and Dalia, and on the W. by the mountains of Norway. It is fertile, and diversified by mountains, rocks, hills, and dales, clothed with forests of birch, poplar, mountain ash, pine, and fir. It also abounds with lakes, which succeed each other almost without intermission: they are from four to 40 miles in circumference; some so narrow as to appear like broad rivers, and others of a circular shape; their shores, in some parts, steep and rocky; in others gently sloping, and feathered with hanging wood to the margin of the water. Numerous rivulets flow from these lakes, and form, sometimes, small picturesque cataracts. Carlstadt is the capital.

WERN, a town of Westphalia, in the bishopric of Munster, with a monastery, seated near the Lippe, 28 miles S. by W. of Munster. Lon. 7. 30 E. Lat. 51. 35 N.

WERNERITE, a colouring earth or ochre found in the iron mines of Northo in Sweden, and near Arendahl in Norway. Its hue is an intermediate between pistachia-green and isabella-yellow: generally found in crystals, small and laterally aggregated, more or less shining, with a lustre between greasy and pearly: its fracture is curved-lamellar in two directions passing into uneven: it is translucent, and somewhat inferior to feldspar. Before the blowpipe it intumesces and melts into a white opake enamel.

WERNIGERODE, a town of Upper Saxony, capital of a county of the same name, with a castle. The principal business of the town consists in brewing, distilling, and manufactures of cloth and stuff. It is 10 miles W. of Halberstadt, and 27 S.S.E. of Wolfenbuttle. Lon. 11. 10 E. Lat. 52. 2 N.

WERRA. See WESER.

WERST, WURST, or *Verst,* a Russian measure equal to 3500 English feet. A degree of a great circle of the earth contains about 104 wersts and a half.

WERT. The second person singular of the subjunctive imperfect of *to be.*

WERTH, *Weaath, Wyrth,* in the names of places, signify a farm, court, or village; from the Saxon ƿeoꞃðıᵹ (*Gibson*).

WERTHEIM, a town of Franconia, capital of a county of the same name. It is seated at the confluence of the Tauber and Maine, 20 miles W. of Wurtzburg. Lon. 9. 53 E. Lat. 49. 46 N.

WERWICK, a town of Austrian Flanders, taken by the French in 1793. It is seated on the Lis, eight miles S.E. of Ypres. Lon. 2. 58 E. Lat. 50. 46 N.

WESEL, a town of Westphalia, in the duchy of Cleves, with a strong citadel, near the confluence of the Rhine and Lippe. Here are two Calvinist churches, one for the Lutherans, and another for the papists; but the regency of the town is in the hands of the Calvinists. It was formerly an imperial and hanseatic town, but it now belongs to the king of Prussia. It was taken by the French in 1759, but restored in 1762. It is 25 miles S.E. of Cleves, and 45 N. of Cologne. Lon. 6. 37 E. Lat. 51. 27 N.

WESEL, a town of Germany, in the archbishopric of Treves, 20 miles S. of Coblentz, and 46 E.N.E. of Treves. Lon. 7. 30 E. Lat. 50. 4 N.

WESENBURGH, a fortified town of Russia, in the government of Esthonia, seated on the Wiss, 55 miles S.E. of Revel, and 55 N.W. of Narva. Lon. 25. 48 E. Lat. 59. 10 N.

WESER, a considerable river of Germany, which rises in the county of Henneburg, being then called the Werra. It passes by Smalkald, crosses a corner of Thuringia, enters the duchy of Brunswick, and receives the Fulde, at Munden. It flows along the confines of Westphalia and Lower Saxony, and, passing by Bremen, enters the German ocean at Carlsburg.

WESIL. *s.* See WEASAND.

WESLEY (John), one of the most extraordinary characters that ever existed, whether we consider him as a various and voluminous writer, a zealous and indefatigable preacher, or the founder of the most numerous sect in the christian world, was the son of the rev. Samuel Wesley, rector of Epworth, in the isle of Axholme, in Lincolnshire, and was born in that village in the year 1703.

In the year 1713 he was entered a scholar at the Charterhouse in London, where he continued seven years, under the tuition of the celebrated Dr. Walker, and of the rev. Andrew Tooke, author of The Pantheon. Being elected to Lincoln college, Oxford, he became a fellow of that college about the year 1725, took the degree of master of arts in 1726, and was joint tutor with the rev. Dr. Hutchins, the rector. He discovered, very early, an elegant turn for poetry: some of his gayer poetical effusions are proofs of a lively fancy and a fine classical taste; and some translations from the Latin poets, while at college, are allowed to have great merit. He had early a strong impression, like count Zinzendorf, of his designation to some extraordinary work. This impression received additional force from some domestic incidents; all which his active fancy turned to one account. His wonderful preservation from a fire when a child, naturally tended to cherish the idea of his being designed by Providence to accomplish some purpose or other, that was out of the ordinary course of human events.

The reading of the writings of Mr. William Law, the celebrated author of Christian Perfection, and of A serious Call to a Holy Life, contributed, moreover, to lead Mr. John Wesley, and his brother Charles, with a few of their young fellow-students, into a more than common strictness of religious life. They received the sacrament of the Lord's supper every week; observed all the fasts of the church; visited the prisons; rose at four in the morning; and refrained from all amusements. From the exact method in which they disposed of every hour, they acquired the appellation of Methodists, by which their followers have been ever since distinguished. See METHODISTS.

The boundaries of this island were soon deemed by Mr. Wesley too confined for a zeal which displayed the piety of an apostle, and of an intrepidity to which few missionaries had been superior. In 1735 he embarked for Georgia, one of our colonies, which was, at that time, in a state of political infancy; and the great object of this voyage was to preach the gospel to the Indian nations in the vicinity of that province. He returned to England in 1737. Of his spiritual labours, both in this country and in America, he himself has given a very copious account, in a series of Journals, printed at different periods. These Journals drew our laborious preacher into a controversy with Dr. George Lavington, bishop of Exeter, and Dr. William Warburton, bishop of Gloucester.

On his return from Georgia, Mr. Wesley paid a visit to count Zinzendorf, the celebrated founder of the sect of Moravians, or Hernhuters, at Herrnuth, in Upper Lusatia. In the following year he appeared again in England, and with his brother Charles, at the head of the Methodists. He preached his first field sermon at Bristol, on the second of April, 1738, from which time his disciples continued to increase. In 1741 a serious altercation took place between him and Mr. Whitefield. In 1744, attempting to preach at an inn at Taunton, he was regularly silenced by the magistrates. Although he chiefly resided, for the remainder of his life, in the metropolis, he occasionally travelled through every part of Great Britain and Ireland, establishing congregations in each kingdom. In 1750 he married a lady, from whom he was afterward separated. By this lady, who died in 1781, he had no children.

It has been justly observed of Mr. Wesley, that his labours were principally devoted to those who had no instructor; to the highways and hedges; to the miners in Cornwall, and the colliers in Kinswood. These unhappy creatures married and buried among themselves, and often committed murders with impunity, before the Methodists sprung up. By the humane and active endeavours of Mr. Wesley and his brother Charles, a sense of decency, morals, and religion, was introduced into the lowest classes of mankind; the ignorant were instructed, the wretched relieved, and the abandoned reclaimed. His personal influence was greater perhaps than that of any other private gentleman in any country. He died March 2, 1791, aged 88, having preached the Wednesday before at Leatherhead in Surrey. His works, as already observed, are very voluminous, and consist of various subjects, Theology, History, Biography, Philosophy, Medicine, &c.

Wesley (Charles), a younger brother of the preceding, was born at Epworth in 1608: he was educated at Westminster-school, from whence, in 1726, he was elected to Christ-church, Oxford; where he pursued his studies with great diligence, and proceeded M. A. In 1735 he accompanied his brother to Georgia. After labouring assiduously in America, and undergoing many difficulties, he returned to England in 1736. He continued to preach with unremitting exertion among the Methodists till the time of his death, which happened in 1788. He was an industrious and popular minister; of a character like that of his brother, strongly marked with piety, disinterestedness, and benevolence. He left two sons, Charles and Samuel, both celebrated for their extraordinary attainments in music.

WEST (Gilbert), son of the rev. Dr. West and of a sister of sir Richard Temple, afterwards lord Cobham, was educated at Eton and at Oxford, with a view to the church; but obtaining from his uncle a commission either in a regiment of dragoons or dragoon guards, entered into the army, where he continued till his appointment into the office of lord Townshend, secretary of state, with whom he attended the king to Hanover. He was nominated clerk extraordinary of the privy-council in May 1729; soon after which he married, and settled at Wickham in Kent, where he devoted himself to learning, and to piety. For his valuable Observations on the Resurrection, which appeared in 1747, he received from Oxford, by diploma, the degree of LL.D. March 30, 1748. In 1749 first appeared his translation of Pindar's Odes. He was very often visited by Lyttelton and Pitt. His income was not large; and his friends endeavoured, but without success, to obtain an augmentation. In time, however, his revenue was improved; he lived to have one of the lucrative clerkships of the privy-council in 1752, and Mr. Pitt at last had it in his power to make him treasurer of Chelsea Hospital. In 1755 he lost his only son, and died himself the year following, on the 26th of March.

West, one of the cardinal points of the horizon, diametrically opposite to the east; and strictly defined the intersection of the prime vertical with the horizon on that side the sun sets in.

West. *a.* Being toward, or coming from, the region of the setting sun (*Numbers*).

West. *ad.* To the west of any place (*Milt.*).

West Point, a strong fortress of New York, in Orange county, on the W. bank of the Hudson. It is situate amid the high lands, and so strongly fortified by nature and art, that it is called the Gibraltar of America. It is 20 miles S. of Poughkeepsie, and 54 N. of New York.

WESTBURY, a borough in Wiltshire, governed by a mayor, with a market on Friday, and a manufacture of broad cloth. On a hill to the E. of it is Bratton castle, the remains of a fortification, where the Danes held out twenty-four days against the English. It is 26 miles N.W. of Salisbury, and 99 W. of London.

WESTERAS, a town of Sweden, capital of Westmania, and a bishop's see, with a citadel, and a famous college. It carries on a considerable commerce with Stockholm, particularly in copper and iron from the neighbouring mines. Here are the ruins of an ancient palace, formerly inhabited by the kings of Sweden. The cathedral, built of brick, is celebrated for its tower, esteemed the highest in the kingdom. In this cathedral is the tomb of the unfortunate Eric XIV. Lon. 17. 0 E. Lat. 59. 38 E.

WESTERHAM, a town in Kent, with a market on Wednesday. It is the birthplace of bishop Hoadly and general Wolfe: the latter is interred in the church. It is seated on the river Darent (which rises from nine springs near this town) 14 miles N.W. of Tunbridge, and 22 S.S.E. of London. Lon. 0. 6 E. Lat. 51. 18 N.

WE'STERING. *a.* Passing to the west (*Milton*).

WE'STERLY. *a.* (from *west.*) Tending or being toward the west (*Graunt*).

WE'STERN. *a.* (from *west.*) Being in the west, or toward the part where the sun sets (*Addison*).

Western Islands. See Azores and Hebrides.

Western Territory, a country in N. America, comprehending all that part of the United States which lies to the N.W. of the river Ohio. It is bounded on the W. by the Missisippi, on the N. by the Lakes, on the E. by Pennsylvania, and on the S.E. and S. by the Ohio. It contains 11,000 square miles, equal to 263,040,000 acres; from which, if we deduct 43,040,000 for water, there will remain 220,000,000 acres, belonging to the federal government, to be sold for the discharge of the national debt. This country, which is intended to be divided into several new states, is affirmed to be the most healthy and fertile spot in America that is yet known to Europeans.

WESTERWALD. See Wetteravia.

WESTERWICK, a seaport of Sweden, in Smoland, seated on the Baltic, 50 miles N. of Calmar, and 120 S.W. of Stockholm. Lon. 16. 0 E. Lat. 57. 40 N.

WESTLANDIA, in botany, a genus of the class hexandria, order hexagynia. Calyx six-leaved; corol six-petalled; capsules six, one-celled, many-seeded. One species, a shrubby, climbing plant of Carolina, with small white flowers.

WESTMANIA, or Westmanland, a province of Sweden Proper, between Sudermania, Gestricia, Nericia, and Upland. It is 75 miles long and 45 broad, and abounds in copper and iron mines. The face of the country is diversified like Wermeland. Westeros is the capital.

WESTMINSTER, a city of Middlesex, the residence of the monarchs of Great Britain, the seat of the parliament and of the high courts of justice, and constituting, with London and Southwark, the metropolis of the British empire. On the dissolution of its abbey, in 1541, Henry VIII. erected it into a bishopric, appointing the whole of Middlesex (Fulham excepted) for the diocese. It had, however, but one prelate, Dr. Thirlbye; for Edward VI., soon after, dissolved it. The abbey is now only a collegiate church, the dean of which is always bishop of Rochester; but Westminster still bears the title of a city, and it sends two members to parliament. In the city are two parish churches, St. Margaret's and St. John's; and seven in the liberties, namely, St. Clement Danes, St. Paul's Covent Garden, St. Mary-le-Strand, St. Martin's in the Fields, St. Ann's Soho, St. James', and St. George's Hanover-square. The precinct of St. Martin's-le-grand, though within the city of London, is under the jurisdiction of Westminster. See LONDON.

WESTMORLAND, a county of England, 42 miles long and 40 broad; bounded on the N. and N.W. by Cumberland, on the E. and S.E. by Yorkshire, and on the S. and S.W. by Lancashire. It is generally divided into the baronies of Kendal and Westmorland: the former is very mountainous, but the latter is a large champaign country. These are the only principal divisions of this county, of which the earl of Thanet is hereditary sheriff. It lies partly in the diocese of Chester, and partly in that of Carlisle; contains eight market-towns and 26 parishes; and sends only four members to parliament. The inhabitants in 1811 amounted to 45,986. (See POPULATION.) The air is clear, sharp, and salubrious, the natives generally living to old age. The soil is various; that on the mountains being very barren, while that in the valleys is fertile, producing good corn and grass, especially in the meadows near the rivers. In the hilly parts on the W. borders are some mines of copper, but the ore lies very deep. This county yields abundance of lime-stone, and the finest blue slate. It is also famous for hams. Its manufactures are a coarse woollen cloth, worsted stockings, flannels, tanned leather, and gunpowder. The principal rivers are the Eden, Lune, and Ken; and the chief lake is Windermere, the largest in England. Appleby is the county town.

WESTPHALIA, one of the circles of Germany, bounded on the E. by Lower Saxony, S. by Hesse, Wetteravia, and Treves, W. by the Netherlands and Holland, and N. by the German ocean. The soil produces pastures and some corn, though there are a great many marshes. The horses are large, and the hogs in high esteem, especially the hams, known by the name of Westphalia hams. The principal rivers are the Weser, Ems, Lippe, and Roer. It contained the bishoprics of Munster, Liege, Paderborn, and Osnaburg; the principalities of Emden or E. Friesland, Meurs, Minden, and Verden; the duchies of Westphalia, Berg, Juliers, Cleve, Oldenburg, and part of the territories of the princes of Nassau; the counties of Mark, Ravensberg, Steinfurt, Tecklenburg, Lingen, Bentheim, Diepholt, Hoya, Schauenburg, Spigelburg, Lippe, Ritberg, and other smaller ones; and several lordships and abbies. But in 1800, all the parts of this circle lying on the left bank of the Rhine, being full one-third of the whole territory, became united to France. Munster is the capital of this circle.

WESTPHALIA, a duchy of Germany, in the circle of Westphalia, 40 miles long and 25 broad; bounded on the N. by the principalities of Munster and Osnaburg, and the county of Lippe, W. by that of Mark, S. by the territories of Nassau, and E. by the counties of Witgenstein, Hartzfeld, Waldeck, and the landgravate of Hesse. It is a mountainous country, full of wood, but moderately fertile. It belonged to the elector of Cologne, but is now subject to the prince of Hesse-Darmstadt. Arensberg is the capital.

WESTRA, one of the Orkney islands, eight miles long, and from one to three broad. The number of inhabitants is about 1300. It is nine miles N.N.E. of Mainland.

WESTRINGIA, in botany, a genus of the class didynamia, order gymnospermia. Calyx five-cleft half way down, five-sided; corol reversed; the border four-cleft; the longest segment erect and cloven; stamens distant; the two lower ones abortive. One species, a New Holland shrub, with silky square branches; leaves clothed with white silky down beneath; flowers axillary, solitary.

W'ESTWARD. *ad.* (peꞅτpeaꞃꝺ, Saxon.) Toward the west.

WE'STWARDLY. *ad.* With tendency to the west (*Donne*).

WET. *a.* (pœτ, Saxon.) 1. Humid; having some moisture adhering: opposed to *dry* (*Bacon*). 2. Rainy; watery (*Dryden*).

WET. *s.* Water; humidity; moisture (*Evelyn*).

To WET'. *v. a.* (from the noun.) 1. To humectate; to moisten (*Milton*). 2. To moisten with drink (*Walton*).

WE'THER. *s.* (peðeꞃ, Saxon; *weder*, Dutch.) A ram castrated (*Graunt*).

WETHERBY, a town in the west riding of Yorkshire, with a market on Thursday, seated on the Wharf, 14 miles W. of York, and 177 N. by W. of London. Lon. 1. 20 W. Lat. 53. 57 N.

WE'TNESS. *s.* (from *wet.*) The state of being wet; moisture; humidity (*Mortimer*).

WETSTEIN (John James), a very learned German divine, born at Basil in 1693. On his admission to the ministry, he maintained a thesis *De variis Novi Testamenti Lectionibus*; in which he shewed that the great variety of readings of the New Testament afford no argument against the authenticity of the text. He had made these various readings the object of his attention; and travelled into foreign countries to examine all the MSS. he could come at. In 1730 he published *Prolegomena ad Novi Testamenti Græci editionem* *accuratissimam, &c.* Some divines, dreading his unsettling the present text, procured a decree of the senate of Basil against his undertaking, and even got him prohibited from officiating in the ministry; on which he went to Amsterdam, where the remonstrants named him to succeed the famous Le Clerc, then superannuated, as professor of philosophy and history. At last he published his edition of the New Testament, in 2 vols. folio, 1752; in which he left the text as he found it, placing the various readings, with a critical commentary, underneath; subjoining two epistles of Clemens Romanus, till then unknown to the learned, but discovered by him in a Syriac MS. of the New Testament. He also published some small works; and is said not only to have been an universal scholar, but to have abounded in good and amiable qualities. He died at Amsterdam in 1754.

WETTER, a lake of Sweden, in Gothland, S.E. of the lake Wenner. It is 100 miles from N. to S. and 25 from E. to W.

WETTING, a town of Lower Saxony, in the duchy of Magdeburg, situate on the Saale, 34 miles S. of Magdeburg. Lon. 11. 40 E. Lat. 11. 31 N.

WETTINGEN, a town of Switzerland, on the Limmat, one mile S. of Baden. Its wooden bridge is a beautiful piece of mechanism, 240 feet long, and suspended 20 feet above the surface of the water. It is the last work of Grubenman, the self-taught architect, and is far more elegant than his bridge at Schaffhaussen.

WETZLAR, a free imperial town of Germany, in Wetteravia, surrounded by ditches and walls flanked with towers. The inhabitants are Protestants, and have a council of 24 members. In 1693, the imperial chamber was transferred hither from Spire, on account of the wars which ravaged the palatinate. It is seated at the confluence of the Lahn, Disle, and Dillen, five miles S. of Solms, and 78 N. by E. of Spire. Lon. 8. 32 E. Lat. 50. 26 N.

WEXFORD, a county of Ireland, in the province of Munster, 38 miles in length, and 24 in breadth; bounded on the north by Wicklow, on the east by St. George's Channel, on the south by the Atlantic ocean, on the west by Waterford and Kilkenny, and on the north by Catherlough. It contains 109 parishes, and sends 18 members to parliament. It is a fruitful country in corn and grass; and the principal town is of the same name.

Wexford, a seaport of Ireland, capital of a county of the same name. It was once reckoned the chief city in Ireland, being the first colony of the English, and is still a large handsome town, with a very commodious harbour at the mouth of the river Slana, on a bay of St. George's Channel, 63 miles south of Dublin. Lon. 6. 3 W. Lat. 52. 18 N.

WEXIO, a seaport of Sweden, in Smoland, seated on a lake, which contains a group of woody islands. Though a bishop's see, it is very small, and the houses mostly of wood. It is 50 miles W. of Calmar, and 155 S.W. of Stockholm. Lon. 14. 57 E. Lat. 56. 41 N.

WEY, a river, which rises in Hampshire, flows through Surrey by Godalming and Guildford, and enters the Thames at Weybridge.

WEYMES, a town of Scotland, in Fifeshire, with a harbour, whence much coal and salt are exported. It stands on the frith of Forth, four miles N.E. of Kirkaldy, and 12 S. by W. of Cupar.

WEYMOUTH, a seaport and borough in Dorsetshire, with a market on Tuesday and Friday. It stands on a bay of its name, in the English channel, and on the south side of the mouth of the Wey, which separates it from the borough of Melcomb Regis. The two boroughs are united as one corporation, governed by a mayor, and the communication between them is by means of a bridge. See Melcomb Regis. The harbour is injured by the sand, that its trade, which was once considerable, is much reduced. This decline is, in some degree, compensated by the great resort of persons of all ranks, for the purpose of sea-bathing, for which it is excellently fitted by its remarkable fine beach; and the royal family have often honoured it with their residence for many weeks. Here is a handsome battery, a royal assembly room, and an elegant theatre. In the church is a fine altar-piece, executed and presented by sir James Thornhill, who was born at Melcomb Regis. A few plain and striped cottons are made here. Near it, at the village of Nottington, is a famous sulphureous spring. Weymouth is nine miles S. of Dorchester, and 128 W.S.W. of London. Lon. 2. 34 W. Lat. 50. 40 N.

WHALE, in astronomy. See Cetus.

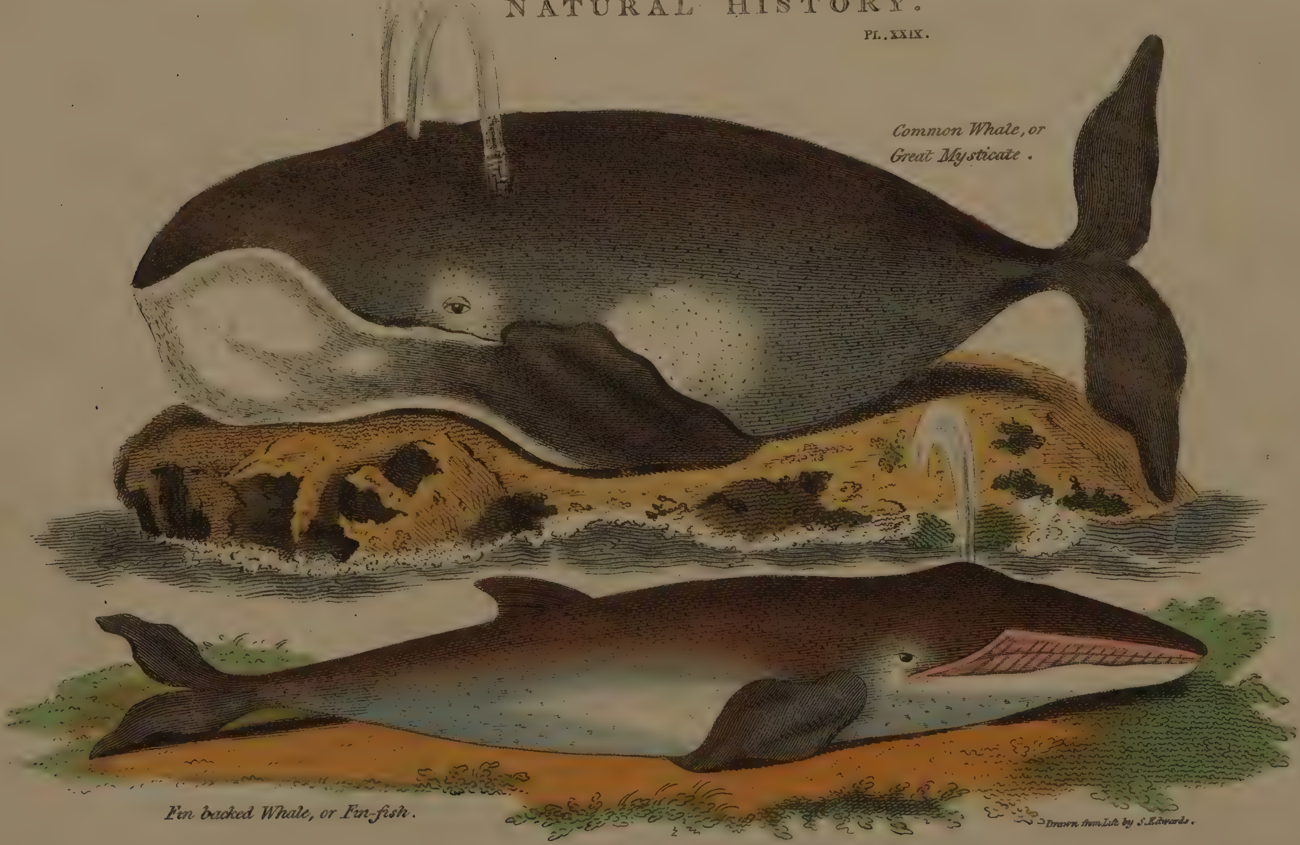
Whale fishery. See Fishery and Balæna.

Whale, in natural history, comprises the whole of the seventh order of the Linnean class mammalia, constituting the cetaceous animals generally: characterised by blowing holes or spiracles placed on the fore part of the skull; feetless; pectoral fins without nails; and a horizontal tail. The genera that belong to the order are the four following: monodon, narwhal, or narval; balæna, or proper whale; physeter, or cachalot; and delphinus, or the dolphin, including the common dolphin, porpoise, and grampus. See these respective terms, as also the article Cete. See also Nat. Hist. Pl. XXIX. LXXIV. LXXV. CLVII.

The cetaceous animals constitute the first order, according to the Aristotelian division; and have obtained from him that name, on account of their enormous size, and their producing a perfect animal from semen, and not from ova. These animals, from the more perfect conformation of their organs, as well as their superior bulk, are fully entitled to the first rank among the inhabitants of the ocean. Among the terrestrial animals, we have seen some endowed with higher powers and more various instincts, and thereby challenging a su-

NATURAL HISTORY.

PL. XXIX.



Common Whale, or
Great Mysticate.

Fin backed Whale, or Fin-fish.

Drawn from Life by S. Edwards.

London Publish'd by Geo. Kearsley, Fleet Street, Feb. 1. 1809.

perior rank among the kindred tribes. The same distinction obtains among the aquatic orders, where the whale, possessing the organization and many of the habits of quadrupeds, claims the first station among his companions of the deep.

This order contains the whales of all the various kinds, that want teeth; the cachalot, with teeth in the lower jaw; the dolphin, with teeth in both jaws; the porpôise, or porpesse; and the grampus. Such are the marks by which the different tribes of this division are distinguished from each other; but the most striking and obvious character by which they are at once discriminated from all other animals is their immense size, which was probably larger formerly than at present, from their not having been so frequently disturbed and destroyed during their growth. The testimony of all ancient writers concurs in ascribing to them a bulk far surpassing the largest animal known upon the globe. In those books which Juba wrote to the son of Augustus Cæsar concerning Arabia, whales of six hundred feet long, and three broad, are said to have entered a river of that country. Pliny himself vouches that some of them were of the extraordinary size of two hundred and forty feet in length by eighteen in breadth; and Nearchus declares, that he saw on one of the islands opposite to the mouth of the Euphrates a whale of an hundred and fifty cubits cast out upon the shore. Arrian, Strabo, and Diodorus, mention nations of savages bordering on the Indian ocean, which built their houses of the bones of whales cast out by the sea, using their jaws for door-cases; and we find from Frobisher, that the same method of architecture was formerly practised by the inhabitants of Greenland.

Many later writers give a similar account of the magnitude of whales. Even within the arctic circle, they were formerly of a prodigious size, when their capture was less frequent, and the animals were allowed to grow. We know, by the accounts of travellers, that within the torrid zone, where they are unmolested, they are still seen one hundred and sixty feet in length. Those at present taken in the Greenland seas seldom exceed eighty or ninety feet in length, and about twenty in breadth: even these, however, must appear enormous to the spectator, and, when first beheld rising from the deep, strike him with astonishment and terror. Those, however, who frequent the Northern ocean, and to whom a repetition of the sight has rendered it less tremendous, must enjoy the magnificent spectacle of such an enormous animated mass tumbling amidst the waves, and darting through the water with incredible velocity! Such wonders does nature present in an element where her operations are but partially known; and hence perhaps she has still greater wonders concealed in the deep, which we have had no opportunities of exploring. The whales are obliged to shew themselves upon the surface, in order to take breath: but who shall determine the size of those animals that are fitted to remain for ever under water, and that have been increasing in magnitude for centuries?

Though we now see no whales two hundred, and two hundred and fifty feet, which we have good reason to believe was the case two centuries ago, still the size of this order of beings is sufficient to distinguish them from all the rest of the animal kingdom. It is more than probable, indeed, from skeletons that have been found at different times, that there once existed terrestrial animals of much greater bulk than are to be found at present. Creatures of such an immense size must have required a proportionable extent of ground for subsistence; and by being rivals with the human race for large territory, they must have been destroyed in the contest. A similiar cause has diminished both the number and the size of the cetaceous tribes: man had no sooner completed his sovereignty over the ocean by the invention of the compass, than these animals were so much thinned by continual capture or destruction, that they have never had time to arrive at that enormous bulk which the peaceable possession of the sea, in former ages, conferred.

The external conformation of the fishes of this genus, no less than their size, serves to characterise them among the other inhabitants of the deep. They are covered with a dark-coloured cinereous skin: they move commonly against the wind, and with vast rapidity, by means of a horizontal tail, aided by three fins, two pectoral, and one back fin; though in some species the last is wanting. The head is commonly extremely large in proportion to the size of the body, being in some equal to a third of the whole magnitude of the animal. The animal is directed to its prey by two small eyes, furnished with eyelids, not superior in size to those of an ox. As the cetaceous tribes all breathe by means of lungs, they have no branchiæ nor external apparatus for that purpose. In the middle of the head there is one, sometimes two orifices, through which they spout water to a vast height, and with a great noise. With these orifices raised above the surface, the whales sleep and breathe, gently moving their fins, to keep themselves poised upon the summit of the water. When immersed below the surface, or while devouring their food, water unavoidably rushes into the throat and lungs, and is, in this manner, ejected every time they rise for a supply of air. If the animal be wounded, it spouts the air and water with a violence sufficient to overset a ship; and the noise it occasions is heard like the discharge of cannon, at the distance of some miles.

Animals of such enormous strength and magnitude, we might imagine, would spread terror and devastation all around them, and make an indiscriminate slaughter of the inferior tribes. No creature, however, is less voracious than the common whale: little animal substance is ever found in its stomach; it feeds, as some allege, upon different insects that float on the surface; according to others, upon the medusa or sea-blubber. Its food, we are certain, must be extremely minute, for the capacity of its throat does not exceed four inches, a size beyond all proportion smaller than that of other large aquatic animals.

The small quantity of food that suffices the whale may justly surprise us, when we consider their size, and the numbers of these animals that often herd together. Had their voracity been proportioned to their bulk and numbers, the ocean itself would hardly have afforded a sufficient supply. The insects upon which they feed are black, and about the size of a bean: they are of a round form, like snails in their shells, and are seen floating in clusters upon the waves. These the whale sucks up in great numbers, and bruises them with the barbs or pipes with which its mouth is internally covered. Nourished with this food, it becomes the fattest of all animals, whether terrestrial or aquatic.

To a slender appetite the whale adds peaceable and harmless manners: it pursues no other inhabitants of the waters, but leads an easy and indolent life on the bosom of the waves, and is inoffensive, proportioned to its ability to do mischief. Among land-animals, we have had occasion to observe, that sovereignty does not always follow strength or size: the elephant and camel fly before the tyger and the lion; while the eagle possesses a decided superiority over the vulture and the ostrich. The same law obtains among the inhabitants of the ocean; where the whale, if he hold the sceptre, holds it by a precarious tenure, for it may easily be wrested from him by his subjects. There is a strong analogy between his manners and those of the elephant: both are the strongest and largest animals in their respective elements; neither offers injury; and each is terrible when provoked to resentment.

But these peaceable and innoxious habits do not equally belong to the whole of the cetaceous order: the fin-fish differs from the great whale in this respect; it subsists chiefly upon herrings, and is often seen driving vast shoals of them before it. Those of the cachalot tribe are still more voracious, and commit greater depredations: they are furnished with teeth both in the upper and lower jaw; their throat, though inferior in capacity to that of the cartilaginous fishes, is much larger than in the common whale; and these powers of deglutition were probably conferred to gratify the cravings of an appetite proportionably more voracious. It is said that the animals of this genus are possessed of a courage, that often proves fatal even to those of their own order: they pursue and terrify the porpesses to such a degree, that they often drive them ashore.

The common whale, therefore, whatever honours vulgar prejudices may have conferred upon it, has but little pretensions to the sovereignty of the ocean: on the contrary, as it is a peaceable and inoffensive animal, it has many enemies disposed to take advantage of its disposition, and inaptitude for combat. There is a small animal of the testaceous kind, called the whale-louse, that sticks to its body, as we see shells stick to the foul bottom of a ship. This creature insinuates itself chiefly under the fins; and, in defiance of all the efforts of the whale, still keeps its hold, and lives upon the fat, which it is provided with instruments to extract. The fishermen, however, often witness the encounters of the whale with a much more terrible enemy. At the sight of the sword-fish this largest of animals is seen agitated in an extraordinary manner, and leaping from the water as if with fear. Wherever it appears, the whale perceives it at a distance, and flies from it in the opposite direction. The whale has no instrument of defence except the tail: with that it endeavours to strike the enemy; and a single blow taking place, would effectually destroy the adversary: but the sword-fish is as active as the other is strong, and easily avoids the stroke; then bounding into the air, it falls upon its subjacent enemy, and endeavours not to pierce it with its pointed beak, but to cut it with its edges. The sea all above is seen dyed with blood, proceeding from the wounds of the whale; while the enormous animal vainly endeavours to reach its invader, and strikes with its tail against the surface of the water, making a report at each blow louder than the noise of a cannon.

A still more fatal enemy of the whale is an animal of its own order, hence called by the fishermen of New England, the killer: we mean the orc or grampus. Of ferocious habits, and furnished with strong sharp teeth, these animals when they surround a whale seldom allow it to come off with life. They tear and mangle its flesh on all sides, till fatigued with fighting, and overcome with wounds, it falls a prey at last to their fury; and after it expires, the tongue is extracted, the only part which they are said to devour.

By the constant hostilities of these various animals, the race of whales has probably been gradually diminishing in number for several ages. From the largeness of their size they cannot easily be concealed from their destroyers; and as they are distinguished by sterility among the finny tribes, their destruction cannot soon be repaired: but of all the causes of the waste and diminution of this order of fishes, the interference of man has operated by far the most powerfully. His hostilities have been incomparably more fatal than those of all the rest of their enemies; and a greater number is probably destroyed in a season by the ingenuity of the fishermen than is devoured by the rapacious animals in an age.

The inhospitable shores of Spitzbergen are found to be the great resort of the whales; and for more than three centuries, notwithstanding the coldness of the climate, and the terrors of the icy sea, a great number of European ships have annually frequented those dreary abodes, and at length thinned the number of their inhabitants.

The whale fishery was carried on, for the sake of the oil, long before the use of whalebone was discovered. The substance which has obtained that name adheres to the upper jaw, and is formed of thin parallel laminæ, some of the longest four yards in length. Of these there are about seven hundred in all: about two-thirds of that number are of a length fit for use, the rest being too short. The oil is extracted from different parts of the body; the tongue alone of some fish yielding from five to six barrels.

As early as the beginning of the fourteenth century, the Biscayneers were in possession of a very considerable trade to the coast of Greenland: they long enjoyed the profits of a lucrative traffic in train-oil, and whale-bone, before the English attempted to obtain any share of that commerce. What probably first gave them an idea of the advantages to be reaped from it was the accident of one of their ships bringing a cargo of whale-bone and train-oil from the bay of St. Laurence, part of the burden of two large Biscayan ships that had been wrecked there about the year fifteen hundred and ninety-four.

A few years after that period, the town of Hull had the honour of first attempting that profitable branch of trade. At present, it seems to be on the decline, the number of whales being greatly reduced by their constant capture for such a vast length of time. It is now said that the fishers, from a defect of whales, apply themselves to seal fishery, from which animals they also extract an oil, and turn the skins to good account. This trade, however, will not probably be of any long continuance, for these shy and timid creatures will soon be induced to quit those shores by being perpetually harassed. We are informed too, that the natives of Greenland already begin to suffer from the scarcity of seals in their seas. The flesh of these animals constitutes their principal subsistence; and should they be at last extirpated, or desert the coast, that miserable people would be in danger of perishing through want. The Antarctic seas, however, are now open to us, and the success which has of late years accompanied the adventures to the coasts of Australasia have greatly turned the attention of mankind to this quarter.

Before the year 1598, the whale seems never to have been taken on our own coasts but when it was accidentally driven on shore. It was then deemed a royal fish, and the king and queen divided the spoil between them; the king asserting his right to the head, and the queen by prerogative being entitled to the tail. A total revolution in the fashion of eatables, and the great quantity of these animals that are now imported, has rendered this prerogative of royalty of less importance, and even ludicrous: formerly, however, the whale, the porpoise, and dolphin, appear all to have formed dishes for the royal board; and from their magnitude they must have held a very respectable station there. Such dainties continued in vogue so late as the reign of Henry VIII.; for, in a household book of that prince, it is ordered, that if a porpoise should be too big for a horse load, allowance should be made to the purveyor. Even in the reign of queen Elizabeth, we find directions for the dressing and serving up of the dolphin with porpoise sauce; a composition of vinegar, crums of bread, and sugar.

The flesh of the whale has always made a part of the food of some savage nations. The natives of Greenland, as well as the barbarous tribes that inhabit the vicinity of the south pole, eat the flesh prepared in various ways, and drink the oil, which is with them a first rate delicacy. The finding of a dead whale is an adventure considered among the most fortunate circumstances of their wretched lives. They make their abode beside it; and seldom remove till they have left nothing but the bones. In the days of Willoughby, the eating whale was merely growing into disuse in England; and at present the Dutch sailors, as well as our own, will not taste it except in cases of urgent necessity: it is said, however, that the French seamen frequently dress and use it as their ordinary food at sea. The wretched inhabitants of the island of Feroe, who live one-half of the year on salted gulls, are also, we are told, very fond of salted whale flesh: the fat of the head, after being well seasoned, they hang up in the chimney, and eat like bacon.

As the cetaceous fishes resemble terrestrial animals in their conformation, so they are also distinguished by similar appetites and manners: among them the act of copulation is said to be performed *more humano*, and the female once in two years feels the access of desire. In the inferior tribes of fishes, we can discern hardly any thing like pairing between the males and females, and have no vestiges of conjugal fidelity. The mutual attachment of the whales, however, exceeds whatever we are told of the constancy of birds.

Whenever a pair of whales are attacked by harpooners, they mutually assist, it is asserted, in the defence of each other; and when one is wounded the other still attends, lending every aid in its power; and no motives of fear or self preservation can urge it to desert its associate. An instance is recorded of one, which, after maintaining an obstinate conflict in defence of its companion, that had been struck with a harpoon, and on seeing it expire under the wounds it had received, stretched itself upon the dying animal and yielded up its breath at the same instant.

The period of gestation among the cetaceous fishes is said to be nine or ten months; the female commonly produces one, and never above two young. During the time of her pregnancy, and particularly at the birth of her offspring, she is uncommonly fat. The embryo, when first perceptible, is about seventeen inches long; and the cub when excluded is of a black colour, and ten feet in length. The two breasts of the whale are hid within the belly; but when she suckles her young, she can produce them at pleasure, at which time they are protuberant about two feet before her body. The teats resemble those of a cow; while the colour of the breasts, in some is white, in others speckled; in all, they are filled with a large quantity of milk resembling that of land animals.

From what has been said concerning the procreation of whales, it appears, that these animals, in fecundity, are far inferior to the rest of the inhabitants of the deep. Nothing, however, can exceed their care and tenderness for their offspring when produced. The female whale carries her cub with her wherever she goes; and when pursued by the fishermen keeps it supported between her fins. Even when wounded, she still clasps her young one; and when forced to plunge into the deep to avoid the strokes of her pursuers carries it down along with her; but rises sooner than usual, to allow it time for respiration.

In defence of her young, the whale is said to display a fierceness and courage far beyond what could be expected from an animal so gentle and inoffensive in its nature. Waller describes the conduct of a whale and her cub, when surrounded in an arm of the sea, in a manner which strongly displays the maternal tenderness of these animals. Being deserted by the tide, they were inclosed on every side; and the people from the shore observing that they had no means left of escape, poured down upon them in boats, armed with such weapons as the occasion offered. After several ineffectual attempts to escape, the mother at last, by her superior strength, forced herself over the shallow into deep water: but though in safety herself, she could not bear the danger that awaited her young one; she therefore rushed in once more where the smaller animal was inclosed, and resolved, when she could not protect, at least to share its danger. Happily for the safety of these animals, the rapid inset of the tide soon enabled both to escape from their enemies, though not till they had received many wounds, and tinged the sea all around with their blood.

It is, however, but for a short period that the young whales stand in need of this parental assistance: their growth is so remarkably rapid, that it may occasion some doubt concerning the accounts that are given of their extraordinary longevity. The cubs continue at the breast of the mother only for a year, during which period they attain to a considerable size, and are called short heads by the sailors. The mother, at the end of that period, is extremely lean and emaciated, while her cub is so large and fat, that it frequently yields above fifty barrels of blubber. The year after they have left the breast, they are called stunts; because they decrease in their fatness, and yield scarcely half of the produce that is obtained from them when sucking. After two years the young whales are called skull fishes: and though for a while they continue of an inferior size, there is no mark by which their age can be ascertained. See Nat. Hist. Pl. XXIX and LXXV.

WHA′LY. *a.* (See Weal.) Marked in streaks: properly *wealy*.

WHARF. *s.* (*wharf*, Swedish; *werf*, Dutch.) A perpendicular bank or mole, raised for the convenience of lading or emptying vessels; a quay, or key (*Child*).

WHA′RFAGE. *s.* (from *wharf*.) Dues for landing at a wharf.

WHA′RFINGER. *s.* (from *wharf*.) One who attends a wharf.

WHARTON (Anne), a lady distinguished for her poetical talents in the reign of king Charles II. She was daughter and co-heiress of sir Henry Lee of Ditchley in Oxfordshire, who, dying without a son, left his estate to be divided between this lady and her sister, the countess of Abingdon. She was the first wife of Thomas, afterwards marquis of Wharton, and is author of several poems, printed in Dryden's and Nichols's collections. She died in 1685.

Wharton (Henry), an English divine, was born in 1664, at Worstead, in Norfolk, of which parish his father was vicar. He was chaplain to archbishop Sancroft, vicar of Minster, in the isle of Thanet, and rector of Chartham, in Kent. He died in 1695, aged 31. His principal works are, Anglia Sacra, 2 vols. folio; Historia de Episcopis & Decanis Londinensibus, &c. ad annum 1540; and Sermons, in 2 vols. 8vo.

Wharton (Philip, duke of), an eccentric English nobleman, was born about 1699. In 1716, having lost his father, the marquis of Wharton, he repaired to Geneva; but disagreeing with his tutor, he left him, and went to Lyons, where paying his court to the pretender, the chevalier de St. George, he was received with the greatest marks of esteem, and had conferred on him the title of the duke of Northumberland: he returned to England, however, at the latter end of the same year, and soon after went to Ireland, where, on account of his extraordinary abilities, he was admitted to take his seat in the house of peers, though under age. Here he became a violent partizan for the ministry, and his conduct procured him his dukedom; in which character, as soon as he was of age, he appeared in England. Nevertheless, he again changed sides, and opposed the court, not only in parliament, but by publishing a paper called The True Briton; thousands of which were dispersed weekly. His boundless profusion having ruined his fortune, and reduced him to an annuity of 1200*l.* per annum, he retired to the continent, where, after attaching himself to the interest of the pretender, and after various vicissitudes and adventures, he died in 1731.

WHAT. *pronoun.* (hpæt, Saxon; *wat*, Dutch.) 1. That which: what *he thinks, he* speaks (*Shakspeare*). 2. Which part: *in ore the metallist marks* what *is metal and* what *is earth* (*Locke*). 3. Something that is in one's mind indefinitely: *I'll tell thee* what (*Shaks.*). 4. Which of several: *he is in doubt* what *purchase to make first* (*Arbuthnot*). 5. An interjection by way of surprise of question: What! *are you there?* (*Dryden*). 6. WHAT *though? What* imports it *though?* notwithstanding (*Hooker*). 7. WHAT *time, What day.* At the time when; on the day when (*Pope*). 8. Which of many? interrogatively: What *colour do you like?* (*Spenser*). 9. To how great a degree: what *wise men were the counsellors* (*Dryden*). 10. It is used adverbially for partly; in part; *he is overcome* what *with hunger,* what *with weariness* (*Norris*). 11. WHAT *ho!* An interjection of calling (*Dry.*).

WHATE'VER. WHATSO'. WHATSOE'VER. *pronouns.* (from *what* and *soever.*) *Whatso* is not now in use. 1. Having one nature or another; being one or another either generically, specifically, or numerically: *I'll catch thee* whatsoever *thou art* (*Denham*). 2. Any thing, be it what it will: whatsoever *I lose, you win* (*Hooker*). 3. The same, be it this or that: whatsoever *it was, it is still* (*Pope*). 4. All that; the whole that; all particulars that: whatsoever *the moon beholds is perishable* (*Shakspeare*).

WHEAL. *s.* (See WEAL.) A pustule; a small swelling filled with matter (*Wiseman*).

WHEAT. See TRITICUM and HUSBANDRY.

WHEAT (Buck). See POLYGONUM.

WHEAT (Eastern buck). See BUCK WHEAT EASTERN.

WHEAT (Indian). See ZEA.

WHEAT (Turkey). See ZEA.

WHEAT-EAR, in ornithology. See MOTACILLA.

WHEAT-SUGAR. The difficulty of procuring West-Indian sugar on the continent while the whole of its coast is blockaded by the British marine, and the whole of the West-India islands are in the possession of the British government, has proved a strong stimulus to urge the spirit of chemistry to exert itself to the utmost in examining the quantity of saccharine matter contained in indigenous plants, with a view of determining the practicability of working sugar from them, as also the possibility of obtaining this material by agents purely chemical. Hence, the buds, the pulps, the stems, and the roots of different plants have been all tried in succession, but ultimately in vain. For although a certain proportion of saccharine matter has been obtainable from most of these organs, and especially from the beet-root, it does not appear to have been in any instance sufficient to repay the expence of the labour. At length, M. Kirchoff of St. Petersburg has succeeded in converting a considerable proportion of the starch of wheat into a saccharine matter, and ultimately into a liquid sugar; and the hint having been thrown out, it has been since followed up in France, with no inconsiderable degree of success. The history of this very recent experiment is highly curious as an article of chemistry, and we readily present our readers with the following account of it in the Annales de Chemie, as abridged by M. Bouillon-Lagrange from M. Vogel's more elaborate detail.

No chemist has hitherto been able to form sugar by chemical agents. It is true, that Fourcroy and some others supposed that at some time or other we should perhaps effect the conversion of starch into sugar, as the component parts of these two substances very nearly approach each other.

Starch, says Fourcroy, announces itself as a little less carbonated than gum: we may say, that it comes very near to saccharine matter; and we shall see hereafter, that it appears in fact capable of forming it by a particular alteration of its own substance[*].

Under the head gum, the same chemist expresses himself as follows: It is not improbable, that art may effect the conversion of gums into saccharine matter; and it has been several times remarked, that an aqueous solution of gum, through which oxymuriatic gass is passed, acquires a saccharine taste, mixed with a strong bitterness. This view of the subject, at present quite novel, will lead to many researches, and to useful results.

It is even pretended, that several authors say they have effected this transmutation of fecula into saccharine matter: but how is it possible, that they should have succeeded, and been silent on a fact of such importance?

On looking over what has been published by natural philosophers, it appears incontestable, that it was reserved for M. Kirchoff, of the imperial academy of St. Petersburg, to convert starch into gummy matter, and this into saccharine matter.

His discovery, which opens a new career to vegetable analysis, and may lead to interesting results, has induced M. Vogel to pursue these new facts. His first experiments, some particulars of which he has given in the Journal de Physique, differ scarcely in any thing from those of Mr. Kirchoff, except in his observing, that part of the saccharine matter is formed in the course of two hours boiling, and that the proportion of two hundredths of sulphuric acid produces more than that of one hundredth, the quantity mentioned by the chemist of St. Petersburg.'

Since that time M. Vogel has followed up his experiments with more care, in order to acquire an intimate knowledge of the saccharine matter, and the mode of its formation.

To remove every idea of the saccharine matter being the result of simple extraction; a

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[*] According to Messrs. Gay-Lussac and Thenard, starch is composed of

Carbon	43.55
Oxygen	49.68
Hydrogen	6.77
	10.000

matter that, having escaped fermentation, was concealed by the starch; he washed the starch with a stream of cold water, before he made use of it.

When well dried and reduced to powder, he mixed 2 kil. (4lbs. 6½ oz. avoird.) with 8 kil. of Seine water, acidulated with 40 gr. (0.02 of the weight of the starch) of sulphuric acid at 56° (1.631.)

He then boiled the mixture in a silver basin for thirty-six hours. There is no danger of its burning, except during the first hour, when it must be kept constantly stirring with a broad wooden spatula. After that time the mixture grows much more fluid, and requires only to be stirred occasionally.

It is essential to keep up the quantity of water, by adding fresh as it evaporates.

After this boiling, it is to be clarified when cold by means of charcoal and chalk, and the whole is to be filtered through flannel.

The liquid having been evaporated nearly to a syrupy consistence, it must be left to cool, that more of the sulphat of lime may fall down; after which the clear liquid is to be decanted off, and the evaporation finished.

The sugar thus obtained with two hundredths of sulphuric acid in a silver basin was much more saccharine, and less high coloured, than that made in a basin of tinned copper.

In general the latter cannot be used for the purpose, the tin being strongly attacked by the long continued boiling. A leaden vessel has been substituted for it with success.

The 2 kil. boiled with two hundredths of sulphuric acid yielded, in several comparative experiments, sometimes a little less, sometimes a little more, than 2 kil. of syrup at 33° of the areometer (1.295); so from a mean of them we may conclude, without any material error, that starch yields its own weight of syrup.

As many substances have a decidedly sweet taste, for instance, sugar of milk, the sweet matter in liquorice, the sweet principle of Scheele (formed during the action of fat oils on litharge in making plasters), without, however, containing an atom of sugar, M. Vogel thought it necessary to ascertain, in the first place, whether the sweet liquor from starch contained real sugar.

For this purpose he mixed some yeast with 200 gr. (3089 grs.) of syrup of starch in warm water, and put the whole into a phial, communicating with the pneumatic apparatus, by means of a sigmoid tube.

Fermentation soon took place, with a very brisk extrication of carbonic acid gass.

The 200 grains of syrup yielded by the fermentation upwards of 5 lit. (near 6 quarts) of carbonic acid gass; and a notable quantity of alcohol was obtained by distillation.

It is certain, that all syrup of starch contains more or less gum, the quantity of which varies extremely, according to the time of boiling, and the weight of the acid employed.

The most saccharine syrup evaporated slowly in a stove, and dried in tin moulds, afforded a perfectly transparent elastic substance, in every respect similar to the paste of jujubes.

The author has no doubt that apothecaries may avail themselves of the syrup of starch, for all this kind of gummy saccharine medicaments, particularly those that may remain in a soft state; for the syrup of starch, thus reduced to a solid state, attracts moisture from the air.

M. Vogel substituted the fecula of potatoes for starch, and equally obtained a very saccharine gummy syrup.

The gum was separated by boiling the syrup in a close vessel with alcohol at 30° (0.868.)

The matter, on which the alcohol had no action, and which was found in the most perfect syrup to the quantity of two-tenths, was very viscous. Being dried and powdered, it exhibited all the characters of gum arabic, namely, its solubility in cold water, forming a thick mucilage insoluble in alcohol.

The only character that appears to distinguish this matter from gum arabic is its not forming mucous acid with nitric acid.

It has been asserted, however, that the gummy matter precipitated from syrup of starch is a compound of starch, water, and sulphuric acid.

To satisfy himself on this head, M. Vogel poured a small portion of alcohol into syrup of starch. The precipitate first formed was composed of sulphat of lime and gum. When this was separated, he poured more alcohol into the syrup that had been decanted from it. The second precipitate was gummy matter, unmixed with sulphat: its solution in water was no longer rendered turbid by muriat of barytes.

The author, however, was not content with this experiment; for it might be objected to him, that the sulphuric acid being chemically combined with the gum, would not quit it to unite with the barytes. He dissolved this gum therefore in barytes water evaporated to dryness, and gave the mass a strong red heat in a platina crucible: thus the sulphuric acid should have been set free, and no doubt would have seized on the barytes. Besides, this sulphat would have been decomposed by the carbon of the gum, and converted into a sulphuret: but muriatic acid poured on the calcined matter extricated nothing but carbonic acid gass, and not an atom of sulphuretted hydrogen gass that could be rendered sensible by paper impregnated with acetat of lead.

Besides, the gum distilled on an open fire did not give out any sulphurous acid, or sulphuretted hydrogen gass.

It is not therefore a hydrat of starch combined with sulphuric acid; which affords us a fresh proof, that we must take care not to frame hypotheses before we consult experiment.

He made the same trials with the syrup deprived of gum by alcohol, which did not precipitate the muriat of barytes; but he could not discover in it the least trace of combined sulphuric acid

These experiments could not fail gradually to lead to an examination of the action of acids diluted with water on some other substances. Sugar of milk first drew his attention; and with the greater reason, as we have already announced this substance to become more soluble in water after it has been treated with acid.

M. Vogel boiled 100 gr. (1545 grs.) of sugar of milk with 400 gr. of water, and 2 gr. of sulphuric acid at 56° (1.631), for three hours, adding more water as it evaporated. After having saturated the excess of acid by carbonat of lime, he filtered.

The liquid, though clear, was slightly coloured. Evaporated slowly in a stove, a thick brownish syrup remained, which concreted into a crystalline mass at the expiration of a few days.

This matter resembling soft sugar has a much more saccharine taste than the most concentrated aqueous solution of sugar of milk. From this extremely saccharine taste the author was led to suspect, that a real sugar had been formed, capable of giving rise to the alcoholic fermentation.

In fact, this product mixed with yeast diluted with water was scarcely placed in favourable circumstances for the alcoholic fermentation, before it commenced in a very brisk manner; though sugar of milk never ferments, as is well known to all chemists, and has been recently placed beyond all doubt by the numerous experiments of M. Bucholz.

This fermented liquor yielded a considerable quantity of alcohol. On varying the proportions of sulphuric acid to three, four, and even five hundredths, very saccharine crystals, that ran into fermentation with extreme facility, were constantly obtained, particularly with five hundredths of acid.

With two or with four hundredths of nitric acid the sugar of milk could not be converted into a fermentable sugar.

Three grammes (46.3 grs.) of muriatic acid converted the sugar of milk into a very saccharine syrup capable of the alcoholic fermentation; while 2 gr. (30.89 grs.) of radical vinegar made no alteration in the sugar of milk.

All these syrups reduced to the crystalline state differ from sugar of milk, not only in being susceptible of the alcoholic fermentation, but also in being very soluble in alcohol, a property that sugar of milk does not possess. Evaporated to dryness by a gentle fire, a white, granular, and extremely saccharine mass is the result.

It remains to explain the manner in which sulphuric acid acts on starch and sugar of milk, to take from them the principle that masks the saccharine substance, or to convert them into fermentable saccharine matters. The author confesses, that it is difficult, and out of his power, to give a clear and plausible theory of this metamorphosis; and if he risk some notions on this subject, it will be with much reserve.

Many are disposed to adopt the opinion, that sugar exists ready formed in starch, and that the sulphuric acid only dissolves or destroys the principle that holds it enchained.

It is obvious, that this reasoning is in a considerable degree vague; and besides, that it is founded on no experiment, direct or indirect. In this hypothesis too we must imagine a compound altogether new, sugar combined with a substance that renders it insoluble in cold water; and sugar has never yet presented us with such a compound.

Others have supposed, that heat alone is capable of effecting this conversion of fecula into saccharine matter; a fact which, if it were confirmed, might throw fresh light on the saccharine fermentation of Fourcroy.

Accordingly, starch has been boiled with water four days in succession, till it became extremely fluid. The filtered liquor was evaporated, and the result was a thick mucilage, very bitter, without the least taste of sugar. The starch remaining on the filter resisted the action of boiling water, and exhibited a very hard horny matter.

It remains to be examined, therefore, whether the sulphuric acid, or the starch itself, be decomposed.

To judge by the letter from Petersburg, the Russian chemists seem to suppose that a decomposition of the sulphuric acid takes place.

To account for these phenomena, we should operate in close vessels. Accordingly, the author introduced into a tubulated receiver a hundred grammes of sugar of milk, four of sulphuric acid, and four hundred of water. To the neck of the retort was adapted a tubulated receiver, from which proceeded a sigmoid tube, opening under a jar filled with water.

After boiling for three hours, no gass had come over, except the air contained in the vessels. A piece of blue paper introduced into the neck of the retort was not reddened. The water that had passed into the receiver was without taste, did not redden litmus paper, had no smell of sulphurous acid, and did not precipitate lime-water, muriat of barytes, or acetat of lead; consequently it contained no sulphurous, sulphuric, acetic, or carbonic acid; in short, it was nothing but pure water.

Barytes-water traversed by the bubbles, extricated during the process, was not rendered turbid in the least, and the gass that had passed into the jars was nothing but the air of the vessels.

It is evident, that the sulphuric acid had not undergone the slightest decomposition: nevertheless, the sugar of milk was decomposed: it had a much more saccharine taste, and after saturation with chalk it fermented very readily with yeast.

It was necessary, therefore, to examine the decomposing action of the sulphuric acid on the substances in question. For this purpose the same experiment was begun afresh in close vessels, with 100 grs. of sugar of milk, 400 grs. of water, and 4 grains of sulphuric acid. During the process no gass was evolved, as in the preceding experiment.

The liquid was then concentrated in a dish accurately weighed, after having added 5 grs. of potash to saturate the acid.

The mass thus evaporated to dryness should have weighed 109 grs. in consequence of the 100 grs. of sugar of milk, 4 grs. of sulphuric acid, and 5 grs. of potash employed; but it weighed only 98 grs. consequently there was a loss of 11 grs. This experiment was repeated twice more, and there was still a loss of 9 or 11 grs. giving a mean of 10 grs.

This loss is too great to be ascribed to any error in the weighing, which was conducted with the greatest care.

Hence we must conclude, that this diminution of weight is occasioned by a quantity of water formed at the expense of the sugar of milk; and this with the more reason, as no gass, no acid, and no other volatile substance, was extricated during the boiling.

All these experiments with the sugar of milk were equally repeated with starch, except that a much larger quantity of water was added to prevent it from burning. The results were the same as those obtained with sugar of milk.

Conclusions.—From all that has been said, it follows:

1. That starch and the fecula of potatoes, boiled with water acidulated with sulphuric acid, are converted into a liquid saccharine matter, the quantity of which corresponds with the weight of the starch employed.

2. That this saccharine matter is susceptible of the alcoholic fermentation.

3. That the syrup of starch is composed of gummy matter and saccharine matter in variable proportions.

4. That the syrup evaporated slowly in a stove exhibits an elastic substance, perfectly transparent.

5. That the gummy matter exhibits all the characters of a true gum, except that of forming mucous acid by means of the nitric.

6. That neither this gum, nor the saccharine matter, holds sulphuric acid in combination.

7. That the heat of boiling water alone is insufficient to convert starch into saccharine matter, as nothing is obtained but a bitter matter, and a horny substance insoluble in boiling water.

8. That sugar of milk treated with two, three, four, or five hundredths of sulphuric acid is converted into confused crystals, which have an extremely saccharine taste, and are susceptible of the alcoholic fermentation.

9. That this saccharine matter does not contain any sulphuric acid in combination.

10. That the muriatic acid effects the same changes in sugar of milk.

11. That neither the nitric nor acetic acid converts sugar of milk into fermentable sugar.

12. That sugar of milk thus converted into fermentable sugar becomes very soluble in alcohol.

13. That sulphuric acid is not decomposed in its action on starch and sugar of milk: and that, from the facts mentioned, it is much more probable, that the acid takes from these substances oxygen and hydrogen in the proportions necessary to form water.

We have only to add, that the preceding experiments have been repeated in our own country with similar results: but that, however curious such results may be in matter of chemical information, neither the quantity nor quality of the sugar hereby produced can ever render it worth while to persevere in the same process, except, as in the present situation of France and her allies, in the case of an utter dearth of West-Indian or even East-Indian produce.

WHE'ATEN. *a.* Made of wheat (*Arbuth.*).

To WHE'EDLE. *v. a.* To entice by soft words; to flatter; to persuade by kind words.

WHEEL. *s.* (hƿeol, Saxon; *wiel*, Dutch.) 1. A circular body that turns round upon an axis (*Dryden*). 2. A circular body (*Shaks.*). 3. A carriage that runs upon wheels (*Milton*). 4. An instrument on which criminals are tortured (*Shakspeare*). 5. The instrument of spinning (*Giffard*). 6. Rotation; revolution (*Bacon*). 7. A compass about; a track approaching to circularity (*Milton*).

To WHEEL. *v. n.* 1. To move on wheels. 2. To turn on an axis (*Bentley*). 3. To revolve; to have a rotatory motion. 4. To turn; to have vicissitudes. 5. To fetch a compass (*Knolles*). 6. To roll forward (*Milton*).

To WHEEL. *v. a.* To put into a rotatory motion; to make to whirl round (*Milton*).

WHEEL, in mechanics, a simple machine, consisting of a circular piece of wood, metal, or other matter, that revolves on an axis. This is otherwise called wheel and axle, or axis in peritrochio, as a mechanical power, being one of the most frequent and useful of any. In this capacity of it, the wheel is a kind of perpetual lever, and the axis another lesser one; or the radius of the wheel and that of its axis may be considered as the longer and shorter arms of a lever, the centre of the wheel being the fulcrum or point of suspension. Whence it is, that the power of this machine is estimated by this rule, as the radius of the axis is to the radius of the wheel, or of the circumference, so is any given power, to the weight it will sustain.

Wheels, as well as their axes, are frequently dented, or cut into teeth, and are then of use upon innumerable occasions; as in jacks, clocks, mill-work, &c.; by which means they are capable of moving and acting on one another, and of being combined together to any extent; the teeth either of the axis or circumference working in those of other wheels or axles; and thus, by multiplying the power to any extent, an amazing great effect is produced.

To compute the power of a combination of wheels; the teeth of the axis of every wheel acting on those in the circumference of the next following. Multiply continually together the radii of all the axes, as also the radii of all the wheels; then it will be, as the former product is to the latter product, so is a given power applied to the circumference, to the weight it can sustain. Thus, for example, in a combination of five wheels and axles, to find the weight a man can sustain, or raise, whose force is equal to 150 pounds, the radii of the wheels being 30 inches, and those of the axes 3 inches.

Here $3 \times 3 \times 3 \times 3 \times 3 = 243$,

and $30 \times 30 \times 30 \times 30 \times 30 = 24300000$,

therefore as 243 : 24300000 : : 150 : 15000000 lb. the weight he can sustain, which is more than 6696 tons weight. So prodigious is the increase of power in a combination of wheels!

But it is to be observed, that in this, as well as every other mechanical engine, whatever is gained in power, is lost in time; that is, the weight will move as much slower than the power, as the force is increased or multiplied, which, in the example above, is 100000 times slower.

Hence, having given any power, and the weight to be raised, with the proportion between the wheels and axles necessary to that effect; to find the number of the wheels and axles. Or, having the number of the wheels and axles given, to find the ratio of the radii of the wheels and axles. Here, putting

p = the power acting on the last wheel,
w = the weight to be raised,
r = the radius of the axles,
R = the radius of the wheels,
n = the number of the wheels and axles;

then, by the general proportion, as $r^n : R^n : : p : w$; therefore $pR^n = wr^n$ is a general theorem, from whence may be found any one of these five letters or quantities, when the other four are given. Thus, to find n the number of wheels: we have first

$$\frac{R^n}{r^n} = \frac{w}{p}, \text{ then } n = \frac{\log. w - \log. p}{\log. R. - \log. r}.$$

And to find $\frac{R}{r}$, the ratio of the wheel to the axle; it is $\frac{R}{r} = \sqrt[n]{\frac{w}{p}}$.

WHEELS OF A CLOCK, &c. are, the crown wheel, contrat wheel, great wheel, second wheel, third wheel, striking wheel, detent wheel, &c.

WHEELS OF COACHES, CARTS, WAGGONS, &c. With respect to wheels of carriages, the following particulars are collected from the experiments and observations of Desaguliers, Beighton, Camus, Ferguson, Jacob, &c.

1. The use of wheels in carriages is twofold; viz. that of diminishing or more easily overcoming the resistance or friction from the carriage; and that of more easily overcoming obstacles in the road. In the first case the friction on the ground is transferred in some degree from the outer surface of the wheel to its nave and axle; and in the latter, they serve easily to raise the carriage over obstacles and asperities met with on the roads. In both these cases, the height of the wheel is of material consideration, as the spokes act as levers, the top of an obstacle being the fulcrum, their length enables the carriage more easily to surmount them; and the greater proportion of the wheel to the axle serves more easily to diminish or to overcome the friction of the axle. See Jacob's Observations on Wheel Carriages, p. 23, &c.

2. The wheels should be exactly round; and the fellies at right angles to the naves, according to the inclination of the spokes.

3. It is the most general opinion, that the spokes be somewhat inclined to the naves, so that the wheels may be dishing or concave. Indeed, if the wheels were always to roll upon smooth and level ground, it would be best to make the spokes perpendicular to the naves, or to the axles; because they would then bear the weight of the load perpendicularly. But because the ground is commonly uneven, one wheel often falls into a cavity or rut, when the other does not, and then it bears much more of the weight than the other does; in which case it is best for the wheels to be dished, because the spokes become perpendicular in the rut, and therefore have the greatest strength when the obliquity of the road throws most of the weight upon them; whilst those on the high ground have less weight to bear, and therefore need not be at their full strength.

4. The axles of the wheels should be quite straight and perpendicular to the shafts, or to the pole. When the axles are straight, the rims of the wheels will be parallel to each other, in which case they will move the easiest, because they will be at liberty to proceed straight forwards. But in the usual way of practice, the ends of the axles are bent downwards, which always keeps the sides of the wheels that are next the ground nearer to one another than their upper sides are; and this not only makes the wheels drag sideways as they go along, and gives the load a much greater power of crushing them than when they are parallel to each other, but also endangers the overturning the carriage when a wheel falls in a hole or rut, or when the carriage goes on a road that has one side lower than the other, as along the side of a hill. Mr. Beighton, however, has offered several reasons to prove that the axles of wheels ought not to be straight; for which see Desagulier's Exp. Phil. vol. ii. appendix.

5. Large wheels are found more advantageous for rolling than small ones, both with regard to their power as a longer lever, and to the degree of friction, and to the advantage in getting over holes, rubs, and stones, &c. If we consider wheels with regard to the friction upon their axles, it is evident that small wheels, by turning oftener round, and swifter about the axles, than large ones, must have much more friction. Again, if we consider wheels as they sink into holes or soft earth, the large wheels, by sinking less, must be much easier drawn out of them, as well as more easily over stones and obstacles, from their greater length of lever or spokes. Desaguliers has brought this matter to a mathematical calculation, in his Experim. Philos. vol. i. p. 171, &c. See also Jacob's Observ. p. 63.

From hence it appears then, that wheels are the more advantageous as they are larger, provided they are not more than five or six feet diameter; for when they exceed these dimensions, they become too heavy; or if they are made light, their strength is proportionably diminished, and the length of the spokes renders them more liable to break: besides, horses applied to such wheels would not be capable of exerting their utmost strength, by having the axles higher than their breasts, so that they would draw downwards; which is even a greater disadvantage than small wheels have in occasioning the horses to draw upwards.

6. Carriages with four wheels, as waggons or coaches, are much more advantageous than carriages with two wheels, as carts and chaises; for with two wheels it is plain the tiller horse carries part of the weight in one way or other: in going down hill the weight bears upon the horse; and in going up hill, the weight falls the other way, and lifts the horse, which is still worse. Besides, as the wheels sink into the holes in the roads, sometimes on one side, sometimes on the other, the shafts strike against the tiller's sides, which destroys many horses: moreover, when one of the wheels sinks into a hole or rut, half the weight falls that way, which endangers the overturning of the carriage.

7. It would be much more advantageous to make the four wheels of a coach or waggon large, and nearly of a height, than to make the fore wheels of only half the diameter of the hind wheels, as is usual in many places. The fore wheels have commonly been made of a less size than the hind ones, both on account of turning short, and to avoid cutting the braces. Crane-necks have also been invented for turning yet shorter, and the fore wheels have been lowered, so as to go quite under the bend of the crane-neck.

It is held, that it is a great disadvantage in small wheels, that as their axle is below the bow of the horses breasts, the horses not only have the loaded carriage to draw along, but also part of its weight to bear, which tires them soon, and makes them grow much stiffer in their hams than they would be if they drew on a level with the fore axle.

But Mr. Beighton disputes the propriety of fixing the line of traction on a level with the breast of a horse, and says it is contrary to reason and experience. Horses, he says, have little or no power to draw but what they derive from their weight: without which they could not take hold of the ground, and then they must slip, and draw nothing. Common experience also teaches, that a horse must have a certain weight on his back or shoulders, that he may draw the better. And when a horse draws hard, it is observed that he bends forward, and brings his breast near the ground; and then if the wheels are high, he is pulling the carriage against the ground. A horse tackled in a waggon will draw two or three ton, because the point or line of traction is below his breast, by the lowness of the wheels. It is also common to see, when one horse is drawing a heavy load, especially up hill, his fore feet will rise from the ground; in which case it is usual to add a weight on his back, to keep his fore part down, by a person mounting on his back or shoulders, which will enable him to draw that load, which he could not move before. The greatest stress, or main business of drawing, says this ingenious writer, is to overcome obstacles; for on level plains the drawing is but little, and then the horse's back need be pressed but with a small weight.

8. The utility of broad wheels, in amending and preserving the roads, has been so long and generally acknowledged, as to have occasioned the legislature to enforce their use. At the same time, the proprietors and drivers of carriages seem to be convinced by experience, that a narrow-wheeled carriage is more easily and speedily drawn by the same number of horses than a broad-wheeled one of the same burthen: probably because they are much lighter, and have less friction on the axle.

On the subject of this article, see Jacob's Observ. &c. on Wheel-carriages, 1773, p. 81; Desagul. Exper. Phil. vol. i. p. 201; Ferguson's Lect. 4to. p. 56; Martin's Phil. Brit. vol. i. p. 229.

Wheel (Blowing), is a machine contrived by Desaguliers, for drawing the foul air out of any place, or for forcing in fresh, or doing both successively, without opening doors or windows. See Philos. Trans. number 437. The intention of this machine is the same as that of Hales's ventilator, but not so effectual, nor so convenient. See Desag. Exper. Philos. vol. ii. p. 563, 568.—This wheel is also called a centrifugal wheel, because it drives the air with a centrifugal force.

Wheel (Water), of a mill, that which receives the impulse of the stream by means of ladle-boards or float-boards. M. Parent, of the academy of sciences, has determined that the greatest effect of an undershot wheel is, when its velocity is equal to the third part of the velocity of the water that drives it; but it ought to be the half of that velocity, as is fully shewn by subsequent writers. In fixing an undershot wheel, it ought to be considered whether the water can run clear off, so as to cause no back-water to stop its motion. Concerning this article, see Desagul. Exp. Philos. vol. ii. p. 422. Also a variety of experiments and observations relating to undershot and overshot wheels, by Mr. Smeaton, in the Philos. Trans. and Gregory's Mechanics.

Wheel (Aristotle's). See Rota (Aristotelica).

Wheel (Measuring). See Perambulator.

Wheel (Orffyreus's). See Orffyreus.

Wheel (Persian). See Persian.

Wheel, in the military art, is the word of command when a battalion or squadron is to alter its front either one way or the other. To wheel to the right, directs the man in the right angle to turn very slowly, and every one to wheel from the left to the right, regarding him as their centre; and vice versa when they are to wheel to the left. When a division of men are on the march, if the word be to wheel to the right or to the left, then the right or left hand man keeps his ground, only turning on his heel, and the rest of the rank move about quick till they make an even line with the said right or left hand man.

WHEEL-BAROMETER. See BAROMETER.

WHEE'LBARROW. *s.* (*wheel* and *barrow.*) A carriage driven forward on one wheel (*Bacon*).

WHEE'LER. *s.* (from *wheel.*) A maker of wheels (*Camden*).

WHEEL-WORK. Of all the modes of communicating motion, the most extensively useful is the employment of wheel-work, which is capable of varying its direction and its velocity without any limit.

Wheels are sometimes turned by simple contact with each other; sometimes by the intervention of cords, straps, or chains, passing over them; and in these cases the minute protuberance of the surfaces, or whatever else may be the cause of friction, prevents their sliding on each other. Where a broad strap runs on a wheel, it is usually confined to its situation, not by causing the margin of the wheel to project, but, on the contrary, by making the middle prominent; the reason of this may be understood by examining the manner in which a tight strap running on a cone would tend to run towards its thickest part. Sometimes also pins are fixed in the wheels, and admitted into perforations in the straps; a mode only practicable where the motion is slow and steady. A smooth motion may also be obtained, with considerable force, by forming the surfaces of the wheels into brushes of hair. More commonly, however, the circumferences of the contiguous wheels are formed into teeth, impelling each other, as with the extremities of so many levers, either exactly or nearly in the common direction of the circumferences; and sometimes an endless screw is substituted for one of the wheels. In forming the teeth of wheels, it is of consequence to determine the curvature which will procure an equable communication of motion, with the least possible friction. For the equable communication of motion, two methods have been recommended; one, that the lower part of the face of each tooth should be a straight line in the direction of the radius, and the upper a portion of an epicycloid, that is, of a curve described by a point of a circle rolling on the wheel, of which the diameter must be half that of the opposite wheel; and in this case it is demonstrable that the plane surface of each tooth will act on the curved surface of the opposite tooth so as to produce an equable angular motion in both wheels; the other method is, to form all the surfaces into portions of the involutes of circles, or the curves described by a point of a thread which has been wound round the wheel, while it is uncoiled; and this method appears to answer the purpose in an easier and simpler manner than the former. It may be experimentally demonstrated, that an equable motion is produced by the action of these curves on each other; if we cut two boards into forms terminated by them, divide the surfaces by lines into equal or proportional angular portions, and fix them on any two centres, we shall find that as they revolve, whatever parts of the surfaces may be in contact, the corresponding lines will always meet each other.

Both these methods may be derived from the general principle, that the teeth of the one wheel must be of such a form, that their outline may be described by the revolution of a curve upon a given circle, while the outline of the teeth of the other wheel is described by the same curve revolving within the circle. It has been supposed by some of the best authors that the epicycloidal tooth has also the advantage of completely avoiding friction; this is however by no means true, and it is even impracticable to invent any form for the teeth of a wheel, which will enable them to act on other teeth without friction. In order to diminish it as much as possible, the teeth must be as small and as numerous as is consistent with strength and durability; for the effect of friction always increases with the distance of the point of contact from the line joining the centres of the wheels. In calculating the quantity of the friction, the velocity with which the parts slide over each other has generally been taken for its measure; this is a slight inaccuracy of conception, for it is certain that the actual resistance is not at all increased by increasing the relative velocity; but the effect of that resistance, in retarding the motion of the wheels, may be shown, from the general laws of mechanics, to be proportional to the relative velocity thus ascertained. When it is possible to make one wheel act on teeth fixed in the concave surface of another, the friction may be thus diminished in the proportion of the difference of the diameters to their sum. If the face of the teeth, where they are in contact, is too much inclined to the radius, their mutual friction is not much affected, but a great pressure on their axis is produced; and this occasions a strain on the machinery, as well as an increase of the friction on the axis. If it is desired to produce a great angular velocity with the smallest possible quantity of wheel-work, the diameter of each wheel must be between three and four times as great as that of the pinion on which it acts. Where the pinion impels the wheel, it is sometimes made with three or four teeth only: but it is much better in general to have at least six or eight; and considering the additional labour of increasing the number of wheels, it may be advisable to allot more teeth to each of them than the number resulting from the calculation; so that we may allow thirty or forty teeth to a wheel acting on a pinion of six or eight. In works which do not require a great degree of strength, the wheels have sometimes a much greater number of teeth than this; and on the other hand, an endless screw or a spiral acts as a pinion of one tooth, since it propels the wheel through the breadth of one tooth only in each revolution. For a pinion of six teeth, it would be better to have a wheel of thirty-five or thirty-seven than thirty-six; for each tooth of the wheel would thus act in turn upon each tooth of the pinion, and the work would be more equally worn than if the same teeth continued to meet in each revolution. The teeth of the pinion should also be somewhat stronger than those of the wheel, in order to support the more frequent recurrence of friction. It has been proposed, for the coarser kinds of wheel-work, to divide the distance between the middle points of two adjoining teeth into thirty parts, and to allot sixteen to the tooth of the pinion, and thirteen to that of the wheel, allowing one for freedom of motion.

The wheel and pinion may either be situated in the same plane, both being commonly of the kind denominated spur-wheels, or their planes may form an angle: in this case one of them may be a crown or contrate wheel; or both of them may be bevelled, the teeth being cut obliquely. According to the relative magnitude of the wheels, the angle of the bevel must be different, so that the velocities of the wheels may be in the same proportion at both ends of their oblique faces; for this purpose, the faces of all the teeth must be directed to the point where the axes would meet. In cases where a motion not quite equable is required, as it sometimes happens in the construction of clocks, but more frequently in orreries, the wheels may either be divided a little unequally, or the axis may be placed a little out of the centre; and these eccentric wheels may either act on other eccentric wheels, or if they are made as contrate wheels, upon a lengthened pinion. An arrangement is sometimes made for separating wheels which are intended to turn each other, and for replacing them at pleasure; the wheels are said to be thrown by these operations out of gear and into gear again. When a wheel revolves round another, and is so fixed as to remain nearly in a parallel direction, and to cause the central wheel to turn round its axis, the apparatus is called a sun and planet wheel. In this case, the circumference of the central wheel moves as fast as that of the revolving wheel, each point of which describes a circle equal in diameter to the distance of the centres of the two wheels; consequently, when the wheels are equal, the central wheel makes two revolutions, every time that the exterior wheel travels round it. If the central wheel be fixed, and the exterior wheel be caused to turn on its own centre during its revolution, by the effect of the contact of the teeth, it will make in every revolution one turn more with respect to the surrounding objects, than it would make, if its centre were at rest, during one turn of the wheel which is fixed; and this circumstance must be recollected when such wheels are employed in planetariums.

Wheels are usually made of wood, of iron, either cast or wrought, of steel, or of brass. The teeth of wheels of metal are generally cut by means of a machine; the wheel is fixed on an axis, which also carries a plate furnished with a variety of circles, divided into different numbers of equal parts, marked by small excavations; these are brought in succession under the point of a spring, which holds the axis firm, while the intervals between the teeth are expeditiously cut out by a revolving saw of steel. The teeth are afterwards finished by a file; and a machine has also been invented for holding and working the file. It is frequently necessary in machinery to protract the time of application of a given force, or to reserve a part of it for future use. This is generally effected by suffering a weight to descend, which has been previously raised, or a spring to unbend itself from a state of forcible flexure, as is exemplified in the weights and springs of clocks and watches. The common kitchen jack is also employed for protracting and equalizing the operation of a weight; in the patent jack the same effect is produced by an alternate motion, the axis being impelled backwards and forwards, as in clocks and watches, by means of an escapement, and the place of a balance spring being supplied by the twisting and untwisting of a cord.

In these machines, as well as in many others of greater magnitude, the fly-wheel is a very important part, its velocity being increased by the operation of any part of the force which happens to be superfluous, and its rotatory power serving to continue the motion when the force is diminished or withdrawn. Thus, when a man turns a winch, he can exert twice as much force in some positions as in others, and a fly enables him in some cases to do nearly one-third more work. In the pile engine, also, without the help of the fly, the horses would fall for want of a counterpoise, as soon as the weight is disengaged. Such a fly ought to be heavy, and its motion must not be too rapid, otherwise the resistance of the air will destroy too much of the motion; but in the kitchen jack, as well as in the striking part of a clock, where the superfluous force is purposely destroyed, the fly is made light, and strikes the air with a broad surface. An effect similar to that of a fly and a spring is sometimes produced in hydraulic machines by the introduction of an air vessel, the air contained in which is compressed more or less, according to the intensity of the force, and exerts a more uniform pressure in expelling the fluid which is forced irregularly into it. See Young's Lectures.

WHEE'LWRIGHT. *s.* (*wheel* and *wright.*) A maker of wheel carriages (*Mortimer*).

WHEE'LY. *a.* (from *wheel.*) Circular; suitable to rotation (*Philips*).

To WHEEZE. *v. n.* (hƿeoꞅon, Saxon.) To breathe with noise (*Floyer*).

WHELK. *s.* An inequality; a protuberance (*Shakspeare*).

WHELK, in helminthology. See BUCCINUM.

To WHELM. *v. n.* (aƿhilƿan, Saxon;

wilma, Islandic.) 1. To cover with something not to be thrown off; to bury (*Pope*). 2. To throw upon something so as to cover or bury it (*Milton*).

WHELP. *s.* (*welp*, Dutch.) 1. The young of the dog; a puppy (*Brown*). 2. The young of any beast of prey (*Donne*). 3. A son: in contempt (*Shakspeare*). 4. A young man: in contempt (*Ben Jonson*).

To Whelp. *v. n.* To bring young: applied to beasts, generally beasts of prey (*Milton*).

WHEN. *ad.* (*whan*, Gothic; hƿænne, Sax.) 1. At the time that (*Camden*). 2. At what time? interrogatively (*Addison*). 3. Which time (*Shakspeare*). 4. After the time that (*Gov. of the Tongue*). 5. At what time (*Dan.*). 6. At what particular time (*Milton*). 7. When *as.* At the time when; what time: obsolete (*Milton*).

WHENCE. *ad.* (formed from *where*, by the same analogy with *hence* from *here.*) 1. From what place (*Milton*). 2. From what person (*Prior*). 3. From what cause (*Fent.*). 4. From which premises (*Dryden*). 5. For which cause (*Arbuthnot*) 6. From what source (*Locke*). 7. From which cause (*Blackmore*). 8. *From* Whence. A vitious mode of speech (*Milton*). 9. *Of* Whence. Another barbarism (*Dryden*).

WHENCESOE′VER. *ad.* (*whence* and *ever.*) From what place soever; from what cause soever (*Locke*).

WHENE′VER. Whensoe′ver. *ad.* At whatsoever time (*Milton. Locke*).

WHERE. *ad.* (hƿœr, Saxon; *waer*, Dut.) 1. At which place or places (*Sidney*). 2. At what place? (*Pope*). 3. At the place in which (*Shaks.*). 4. *Any* Where. At any place (*Burnet*). 5. Where, like *here* and *there*, has in composition a kind of pronominal signification; as, *whereof*, of which. 6. It has the nature of a noun (*Spenser*).

WHE′REABOUT. *ad.* (*where* and *about.*) 1. Near what place. 2. Near which place (*Shaks.*). 3. Concerning which (*Hooker*).

WHEREA′S. *ad.* (*where* and *as.*) 1. When on the contrary (*Sprat*). 2. At which place: obsolete (*Shaks.*). 3. The thing being so that (*Hooker*). 4. But on the contrary (*Woodward*).

WHEREA′T. *ad.* 1. At which (*Kettlewell*). 2. At what?

WHEREBY′. *ad.* 1. By which? (*Hooker*). 2. By what?

WHERE′VER. *ad.* (*where* and *ever.*) At whatsoever place (*Milton*).

WHE′REFORE. *ad.* (*where* and *for.*) 1. For which reason (*Hooker*). 2. For what reason (*Shakspeare*).

WHEREI′N. *ad.* (*where* and *in.*) 1. In which? (*Swift*). 2. In what? (*Malachi*).

WHEREI′NTO. *ad.* (*where* and *into.*) Into which (*Woodward*).

WHE′RENESS. *s.* (from *where.*) Ubiety; imperfect locality (*Grew*).

WHE′REOF. *ad.* (*where* and *of.*) 1. Of which (*Dryden*). 2. Of what: indefinitely (*Milton*). 3. Of what? interrogatively.

WHE′REON. *ad.* (*where* and *on.*) 1. On which (*Milton*). 2. On what? as, *whereon* did he sit?

WHE′RESO. Wheresoe′ver. *ad.* (*where* and *soever.*) In what place soever. *Whereso* is obsolete (*Spenser. Shakspeare*).

WHERETO′. Whereunto′. *ad.* (*where* and *to*, or *unto.*) 1. To which (*Hooker*). 2. To what? to what end?

WHEREUPO′N. *ad.* (*where* and *upon.*) Upon which (*Clarendon. Davies*).

WHEREWI′TH. Wherewitha′l. *ad.* (*where* and *with*, or *withal.*) 1. With which (*Wycherley*). 2. With what? (*Matthew*).

To WHE′RRET. *v. a.* 1. To hurry; to trouble; to tease. 2. To give a box on the ear (*Ainsworth*).

WHE′RRY. *s.* (of uncertain derivation.) A light boat used on rivers (*Drayton*).

To WHET. *v. a.* (hƿettan, Saxon; *wetten*, Dutch.) 1. To sharpen by attrition (*Boyle*). 2. To edge; to make angry or acrimonious (*Dryden*).

Whet. *s.* (from the verb.) 1. The act of sharpening. 2. Any thing that makes hungry, as a dram (*Dryden*).

WHE′THER. *ad.* (hƿœðer, Saxon.) A particle expressing one part of a disjunctive question in opposition to the other: answered by *or* (*Tillotson*).

Whe′ther. *pronoun.* Which of two (*Bent.*).

WHE′TSTONE. *s.* (*whet* and *stone.*) Stone on which any thing is whetted, or rubbed to make it sharp (*Fairfax*).

Whetstone, in mineralogy, a substance formed sometimes out of a species of Ardesia, and sometimes out of a species of Arenarius. See these articles.

WHE′TTER. *s.* (from *whet.*) One that whets or sharpens (*More*).

WHEY. *s.* (hƿœᵹ, Saxon; *wey*, Dutch.) The serum or watery part of milk, which remains after the cream and coagulable matter of that fluid are removed, either by churning, or by separating it with rennet, vinegar, cream of tartar, &c.

Whey is an agreeable and wholesome liquid: the best is that separated by rennet; as a considerable portion of curd and saccharine particles are suspended in it; whereas the serum, arising from the spontaneous decomposition of milk, possesses an acid taste, is totally divested of the nourishing properties of milk, and ought to be used only in certain cases of fever or inflammation. On the other hand, the latter is a pleasant, cooling beverage, during the heat of summer, and may be advantageously drunk by the scorbutic and consumptive.

Scalding Whey is prepared by a simple expedient, adopted in the midland counties, for improving the quality of whey butter. It consists in suspending each meal of cream, as it is taken off the whey, over the fire, till it become scalding hot; care being taken that it may not boil. Thus, the butter is greatly improved; and, if the milk have become rancid or bitter, from the cows having eaten turnips, or barley-straw, such disagreeable taste will be completely removed.

Mustard Whey is made by boiling 1½ oz. of mustard in a pint of milk, and an equal portion of water, till the curd be entirely separated; after which the liquid is strained through a cloth. This preparation is one of the most pleasant and efficacious forms in which mustard can be taken; the dose being one tea-cupful, which may be sweetened with a little sugar, and taken three or four times in the course of the day.

White-wine Whey is made by pouring equal parts of white wine and skimmed milk into a bason; and, after they have stood for a few minutes, by adding a double portion of boiling water. In a short time, the curd will collect, and subside at the bottom: the whey is now to be strained into another vessel, and sweetened with sugar: a sprig of balm or slice of lemon will greatly improve its flavour. This kind of whey affords a salubrious beverage; and, when taken immediately before retiring to bed, it is particularly serviceable to those who have undergone severe bodily fatigue; or been exposed to the inclemency of the weather; as it will excite a gentle perspiration, and thus obviate a sudden cold or catarrh.

WHE′YEY. Whe′yish. *a.* (from *whey.*) Partaking of whey; resembling whey (*Bacon. Philips*).

WHICH. *pronoun.* (hƿilc, Sax. *welk*, Dutch.) 1. The pronoun relative, relating to things (*South*). 2. It formerly was used for *who*, and related likewise to persons; as in the first words of the Lord's Prayer (*Shakspeare*).

WHI′CHSOEVER. *pronoun.* (*which* and *soever.*) Whether one or the other (*Locke*).

WHIDAH, a kingdom of Africa, on the coast of Guinea, and to the west of the Gold Coast; extending about ten miles along the sea. It is a populous country, well furnished with large villages; and there are so many small ones, that they are not above a musket-shot from each other. Whidah was conquered by the king of Dahomy. Their trade consists of slaves, elephants' teeth, wax, and honey. The English factory is 200 miles east of Cape Coast Castle, within land. Bows, arrows, beautiful assaguays, and clubs, are the principal weapons of the nation.

WHIDAW-BIRD. See Emberiza.

WHIFF, in ichthyology. See Pleuronectes.

Whiff. *s.* (*chwyth*, Welsh.) A blast; a puff of wind (*Shakspeare*).

To WHI′FFLE. *v. n.* (from *whiff.*) To move inconstantly, as if driven by a puff of wind (*L'Estrange*).

WHI′FFLER. *s.* (from *whiffle.*) 1. A harbinger; probably one with a horn or trumpet (*Shakspeare*). 2. One of no consequence; one moved with a whiff or puff (*Spectator*).

WHIG. *s.* (hƿœg, Saxon.) 1. Whey. 2. The name of a faction. See Tory.

WHI′GGISH. *a.* (from *whig.*) Relating to the whigs (*Swift*).

WHI′GGISM. *s.* (from *whig.*) The notions of a whig (*Swift*).

WHILE. *s.* (*weil*, German; hƿile, Saxon.) Time; space of time (*Ben Jonson*).

While. Whiles. Whilst. *ad.* (hƿile, Saxon.) *Whiles* is now out of use. 1. During the time that (*Milton*). 2. As long as (*Watts*). 3. At the same time that (*Addison*).

To While. *v. n.* (from the noun.) To loiter (*Spectator*).

WHILE′RE. *ad.* (*while* and *ere*, or *before.*) A little while ago: not in use (*Raleigh*).

WHI′LOM. *ad.* (hƿilom, Saxon.) Formerly; once; of old: not in use (*Milton*).

WHIM. *s.* A freak; an odd fancy; a caprice; an irregular motion of desire (*Swift*).

Whim plate, in the language of the turf, is where the horses who run carry weight for age, and weight for inches.

WHIMBREL. See Scolopax.

To WHI′MPER. *v. n.* (*wimmeren*, German.) To cry without any loud noise (*Rowe*).

WHI′MSEY. *s.* A freak; a caprice; an odd fancy; a whim (*L'Estrange*).

WHI′MSICAL. *a.* (from *whimsey.*) Freakish; capricious; oddly fanciful (*Addison*).

WHIN, in botany. See Ulex.

Whin (Petty), in botany. See Genista.

Whin-chat, in ornithology. See Motacilla.

To WHINE. *v. n.* (ƿanian, Saxon.) To lament in low murmurs; to make a plaintive noise; to moan meanly and effeminately (*Sidney*).

Whine. *s.* (from the verb.) Plaintive noise; mean or affected complaint (*South*).

To WHI′NNY. *v. n.* (from the sound.) To make a noise like a horse or colt.

WHINSTONE, in mineralogy, a species of Basaltes, which see.

To WHIP. *v. a.* (hƿeopan, Saxon; *wippen*, Dutch.) 1. To strike with any thing tough and flexible (*Addison*). 2. To sew slightly (*Gay*). 3. To drive with lashes (*Locke*). 4. To correct with lashes (*Smith*). 5. To lash with sarcasm (*Shakspeare*). 6. To inwrap (*Moxon*).

To Whip. *v. a.* To take any thing nimbly: always with a particle ascertaining the sense; as, *out*, *on*, *up*, *away*. A ludicrous use (*L'Estrange*).

To Whip. *v. n.* To move nimbly (*L'Estrange*).

Whip. *s.* (hƿeop, Saxon.) An instrument of correction tough and pliant (*Pope*).

WHI′PCORD. *s.* (*whip* and *cord.*) Cord of which lashes are made (*Dryden*).

WHI′PGRAFTING. *s.* (in gardening.) A king of grafting.

WHI′PHAND. *s.* (*whip* and *hand.*) Advantage over (*Dryden*).

WHI′PLASH. *s.* The lash or small end of a whip (*Tusser*).

WHI′PPER. *s.* (from *whip.*) One who punishes with whipping (*Shakspeare*).

Whipper-in, among sportsmen, an assistant subordinate to the huntsman in every hunting establishment, which, if upon a full scale, is never considered complete with less than two. One of these has a superiority of power, and is called the first; the other, the second, whipper-in. The first, upon every occasion, is considered as a second huntsman, empowered to act upon every emergency, and at all times during a temporary separation of the huntsman in the chase, or his unavoidable absence. It is his duty, however, to remain strictly obedient to the huntsman, and to execute all his injunctions with the most cheerful alacrity; and however largely he may be qualified in other respects, it is impossible he can ever become a good whipper-in, if he is in possession of a bad temper.

Mr. Beckford declares an excellent whipper-in to be of more consequence than an excellent huntsman; and that he has no doubt of better sport and killing more foxes with a moderate huntsman and an excellent whipper-in, than with the best of huntsmen without such assistance.

When hounds are taken from the kennel, it is the place of the first whipper-in to go before, and of the second to come at some distance behind them. The first whipper-in should be of light weight, great agility, quick conception, of much personal fortitude, and an excellent horseman. With these qualifications, he has it always in his power to exert and display his ability to advantage. While the huntsman sticks close to his headmost hounds, the whipper-in can give proof of his judgment in various ways: he can clap forward to any great earth that may be open; he may sink the wind, to view and halloo a fox when the scent fails, or keep him off his foil: he may avail himself of the first opportunity to stop the tail hounds, and get them forward; and he has it constantly in his power to assist the hounds, if he have penetration to discover where, and at what time, it is most wanted. The making and keeping a pack steady, depend entirely upon him; as it is not the province of a huntsman either to rate or flog a hound, if it can consistently be avoided.

During the chase, whenever it may be necessary to stop the hounds, the whipper-in should always be at their head before he begins to make the attempt. Rating behind can effect but little; and if they are running riot in covert, it may prevent him from knowing which are the agressors. Whippers-in are frequently in the extreme, and continue rating long after they find that rating will not avail: a hound should never be struck, unless he be first made sensible what it is for: if they were a little less hasty, and more disposed to reflection, they would never strike a hound that does not deserve it, and would strike those hard that do.

WHI′PPINGPOST. *s.* (*whip* and *post.*) A pillar to which criminals are bound when they are lashed (*Hudibras*).

WHI′PSAW. *s.* (*whip* and *saw.*) The *whipsaw* is used by joiners to saw such great pieces of stuff that the handsaw will not easily reach through (*Moxon*).

WHI′PSTAFF. *s.* (On shipboard.) A piece of wood fastened to the helm; which the steersman holds in his hand to move the helm and turn the ship (*Bailey*).

WHI′PSTER. *s.* (from *whip.*) A nimble fellow (*Prior*).

To WHIRL. *v. a.* (hƿẏꞃꝼan, Saxon; *whirbelen*, Dutch.) To turn round rapidly (*Dry.*).

To Whirl. *v. n.* 1. To run round rapidly (*Smith*). 2. To move hastily (*Dryden*).

Whirl. *s.* (from the verb.) 1. Gyration; quick rotation; circular motion; rapid circumvolution (*Dryden. Smith*). 2. Any thing moved with rapid rotation (*Addison*).

Whirl, or Whorl, in botany. See Verticil.

WHIRLE-BONE, among farriers, that bone in the hinder extremity of a horse, which reaches from the hip to the stiffle. It is properly the thigh-bone, the upper end of which, moving round in its acetabulum or socket, when the limb is in action, obtained that name amongst farriers.

WHI′RLIGIG. *s.* (*whirl* and *gig.*) A toy which children spin round (*Prior*).

WHI′RLPIT. Whi′rlpool. *s.* (hƿẏꞃꝼpole, Saxon.) A place where the water moves circularly, and draws whatever comes within the circle toward its centre; a vortex (*Sandys. Bentley*).

WHIRLWIND, a wind that rises suddenly, is exceedingly rapid and impetuous, in a whirling direction, and often progressively also; but it is commonly soon spent. Dr. Franklin, in his Physical and Meteorological Observations, read to the Royal Society in 1756, supposes a whirlwind and a water-spout to proceed from the same cause: their only difference being, that the latter passes over the water, and the former over the land. This opinion is corroborated by the observations of many others, who have remarked the appearances and effects of both to be the same. They have both a progressive as well as a circular motion; they usually rise after calms and great heats, and mostly happen in the warmer latitudes: the wind blows every way from a large surrounding space, both to the water-spout and whirlwind; and a water-spout has, by its progressive motion, passed from the sea to the land, and produced all the phenomena and effects of a whirlwind; so that there is no reason to doubt that they are meteors arising from the same general cause, and explicable upon the same principles, furnished by electrical experiments and discoveries.

WHI′RRING. *a.* A word formed in imitation of the sound expressed by it (*Pope*).

WHISK. *s.* (*wischen*, to wipe, German.) 1. A small besom, or brush (*Swift*). 2. A part of a woman's dress (*Child*).

To Whisk. *v. a.* (*wischen*, to wipe, German.) 1. To sweep with a small besom. 2. To move nimbly, as when one sweeps (*Hudibras*).

WHI′SKER. *s.* (from *whisk.*) The hair growing on the upper lip unshaven; the mustachio (*Pope*).

WHISKY, a term signifying water, and applied in Scotland and in Ireland to a distilled liquor drawn from barley, which is by many thought preferable to any English malt brandy.

To WHI′SPER. *v. n.* (*wisperen*, Dutch.) To speak with a low voice; to speak with suspicion, or timorous caution (*Sidney*).

To Whi′sper. *v. a.* 1. To address in a low voice (*Shakspeare*). 2. To utter in a low voice (*Bentley*). 3. To prompt secretly (*Sh.*).

Whi′sper. *s.* (from the verb.) A low soft voice (*South*).

WHI′SPERER. *s.* (from *whisper.*) 1. One that speaks low. 2. A private talker; a teller of secrets (*Bacon*).

WHIST. 1. Are silent (*Shakspeare*). 2. Still; silent; put to silence (*Milton*). 3. Be still.

Whist, the most perfect game on the card table, requiring great attention and silence, whence its name.

This game has more than any other been honoured by the calculations of the first mathematicians of different countries and ages; particularly of De Moivre and Ozanam, as to the more important chances it presents. It is played by four persons, who cut for partners; those who cut the two highest cards are partners against the two lowest, and the person who cuts the lowest card is entitled to the deal. In cutting, the ace is accounted the lowest.

Though it is customary for only the elder hand, and afterwards the dealer, to shuffle the cards, yet each player has a right so to do before the deal, but the elder hand ought to shuffle last, excepting the dealer.

The pack is afterwards cut by the right hand adversary, and the dealer is to distribute the cards, alternately, one at a time, to each of the players, beginning with the left hand adversary, till the last card, which must be turned up, being the trump, and left on the table till the first trick is played.

No one, before his partner plays, may inform him that he has, or has not won the trick; even the attempt to take up a trick, though won, before the last partner has played, is deemed very improper. No intimations of any kind during the play of the cards between partners are to be admitted. The mistake of one party is the game of the adversary. However, there is one exception to this rule, in case of a revoke: if a person happen not to follow suit, or should trump a suit, the partner is permitted to inquire whether he is sure he has none of that suit in hand. This indulgence must have arisen from the severe penalties annexed to revoking, which affect the partners equally.

The person on the dealer's left hand is the elder hand, and plays first; and whoever wins the trick becomes the elder hand, and plays again; and so on till all the cards are played out. The tricks belonging to each party should be turned and collected by the respective partners of whoever wins the first trick in that hand. Each trick above six is reckoned one point towards the game. The ace, king, queen, and knave of trumps are called honours; and when either of the parties has in his own hand, or between himself and his partner, three honours, they count two points towards the game; and in case they should have the four honours, they count four points. Ten points make the game.

M. De Moivre has shewn, in his Doctrine of Chances, that the calculation is nearly as 27 to 2 that the partners, one of whom deals, will not have the four honours.

That it is about 23 to 1 that the adversaries will not have them.

That it is nearly 8 to 1 that they will not be found on any one side.

That we may bet about 13 to 7, without disadvantage, that the partners who are first in hand will not count honours.

That about 20 to 7 may be betted that the adverse party will not count them.

And lastly, that it is 25 to 16 one of the two sides will count honours, or that they will not be equally divided.

The following general account and regulation of this game is drawn up chiefly from Hoyle and Payne.

RULES FOR PLAYING THE GAME.

Leader.—1. Begin with the suit of which you have most in number. For when the trumps are out, you will probably make several tricks in it.

2. If you hold equal numbers in different suits, begin with the strongest. Because it is the least liable to injure your partner.

3. Sequences are always eligible leads. Because they support your partner without injuring your own hand.

4. Lead from a king or queen, rather than from an ace. For since the adversaries will lead from those suits which you do not, your ace will do most harm.

5. Lead from a king rather than from a queen, and from a queen rather than a knave. For the stronger the suit, the less is your partner endangered.

6. Lead not from ace-queen, or ace-knave, till necessary. For if that suit is led by the adversaries, you have a good chance of making two tricks in it.

7. In all sequences to a queen knave, or ten, begin with the highest. Because it will frequently distress your left hand adversary.

8. Having ace, king, and knave, lead the king. For if strong in trumps, you may wait the return of that suit, and finesse the knave.

9. Having ace, king, and one small card, lead the small one. For by this lead your partner has a chance to make the knave.

10. Having ace, king, and two or three small cards, play ace and king if weak in trumps, but a small card if strong in them. For when strong in trumps you may give your partner the chance of making the first trick.

11. Having king, queen, and one small card, play the small one. For your partner has an equal chance to win, and you need not fear to make king or queen.

12. Having king, queen, and two or three small cards, lead a small card if strong, and the king if weak in trumps. For strength in trumps entitles you to play a backward game, and give your partner the chance of winning the first trick; but if weak in trumps, it is necessary to secure a trick in that suit, by leading the king or queen.

13. Having an ace with four small cards, and no other good suit; play a small card if strong in trumps, and the ace if weak. For strength in trumps may enable you to make one or two of the

small cards, although your partner cannot support the lead.

14. Having king, knave, and ten, lead the ten. For if your partner holds the ace, you have a good chance to make three tricks, whether he passes the ten or not.

15. Having king, queen, and ten, lead the king. For if it fails, by putting on the ten upon the return of that suit from your partner, you have a chance of making two tricks.

16. Having queen, knave, and nine, lead the queen. For upon the return of that suit from your partner, by putting on the nine, you will probably make the knave.

Second hand.—1. Having ace, king, and small ones, play a small card if strong in trumps, but the king if weak in them. For otherwise your ace or king might be trumped in the latter case, and no hazards should be run with few trumps but in critical cases.

2. Having ace, queen, and small cards, play a small one. For upon the return of that suit you will probably make two tricks.

3. Having ace, knave, and small cards, play a small one. For upon the return of that suit you will perhaps make two tricks.

4. Having ace, ten, or nine, with small cards, play a small one. For by this method you have a chance of making two tricks in the suit.

5. Having king, queen, ten, and small cards, play the queen. For by playing the ten upon the return of the suit, you will probably make two tricks in it.

6. Having king, queen, and small cards, play a small card if strong in trumps, but the queen if weak in them. For strength in trumps warrants playing a backward game, and it is always advantageous to keep back your adversaries suit.

7. If you hold a sequence to your highest card in the suit, play the lowest of it. For by this means your partner is informed of your strength.

8. Having queen, knave, and small ones, play the knave. Because you will, in great probability, secure a trick.

9. Having queen, ten, and small ones, play a small one. For your partner has an equal chance to win.

10. Having either ace, king, queen, or knave, with small cards, play a small one. For your partner has an equal chance to win the trick.

11. Having either ace, king, queen, or knave, with one small card only, play the small one. For otherwise the adversary will finesse upon you.

12. If a queen be led, and you hold the king, put it on. For if your partner holds the ace, you do no harm; and if the king is taken, the adversaries have played two honours to one.

13. If a knave be led, and you hold the queen, put it on. For at the worst you bring down two honours for one.

14. If a king be led, and you hold ace, knave, and small ones, play the ace. For it cannot do the adversaries a greater injury.

Third hand.—1. Having ace and king, play the ace, and return the king. Because you are not to keep the command of your partner's strong suit.

2. Having ace and queen, play the ace, and return the queen. For although it may prove better in some cases to put on the queen, yet in general your partner is best supported by the method above.

3. Having ace and knave, play the ace, and return the knave. In order to strengthen your partner's hand.

4. Having king and knave, play the king; and if it wins, return the knave. Because it will strengthen your partner's hand.

5. Always play the best when your partner leads a small card. Because it best supports your partner's hand.

6. If you hold the ace and one small card only, and your partner lead the king; put on the ace, and return the small one. For otherwise your ace will be an obstruction to his suit.

7. If you hold the king, and one small card only, and your partner lead the ace; if the trumps be out, it is good to play the king. For by putting on the king, there is no obstruction to the suit.

Fourth hand.—1. If a king be led, and you hold ace, knave, and a small card, play the small one. For supposing the queen to follow, you probably make both ace and knave.

2. When the third hand is weak in his partner's lead, you may often return that suit to great advantage. But this rule must not be applied to trumps, unless you are very strong indeed.

Cases in which you should return your partner's lead immediately.—1. When you win with the ace, and can return an honour. For that will greatly strengthen his hand.

2. When he leads a trump. In which case return the best remaining in your hand (unless you hold four originally); except the lead is through an honour.

3. When your partner has trumped out. For then it is evident he wants to make his great suit.

4. When you have no good card in any other suit. For then you entirely depend on your partner.

Cases in which you should not return your partner's lead immediately.—1. If you win with the king, queen, or knave, and have only small cards left. For the return of a small card will more distress than strengthen your partner.

2. If you hold a good sequence. For then you may shew a strong suit, and not injure his hand.

3. If you have a strong suit. Because leading from a strong suit directs your partner, and cannot injure him.

4. If you have a good hand. For in this case you have a right to consult your own hand.

5. If you hold five trumps. For then you are warranted to play trumps if you think it right.

Of leading trumps.—1. Lead trumps from a strong hand, but never from a weak one. By which means you will secure your good cards from being trumped.

2. Trump not out with a bad hand, although you hold five small trumps. For since your cards are bad, it is only trumping for the adversaries good ones.

3. Having ace, king, knave, and three small trumps, play ace and king. For the probability of the queen's falling is in your favour.

4. Having ace, king, knave, and one or two small trumps, play the king, and wait the return from your partner to put on the knave. This method is in order to win the queen, but if you have particular reasons to wish the trumps out, play two rounds, and then your strong suit.

5. Having ace, king, and two or three small

trumps, lead a small one. This is to let your partner win the first trick; but if you have good reason for getting out the trumps, play three rounds, or play ace and king, and then proceed with your strong suit.

6. If your adversaries be eight, and you hold no honour, throw off your best trump. For if your partner have not two honours, you have lost the game, and if he hold two honours, it is most advantageous to lead a trump.

7. Having ace, queen, knave, and small trumps, play the knave. For by this mean the king only can make against you.

8. Having ace, queen, ten, and one or two small trumps, lead a small one. For it will give your partner a chance to win the trick, and keep the command in your own hand.

9. Having king, queen, ten, and small trumps, lead the king. For if the king is lost, upon the return of trumps you may finesse the ten.

10. Having king, knave, ten, and small ones, lead the knave. Because it will prevent the adversaries from making a small trump.

11. Having queen, knave, nine, and small trumps, lead the queen. For if your partner hold the ace, you have a good chance of making the whole suit.

12. Having queen, knave, and two or three small trumps, lead the queen. For if your partner hold the ace, you have a good chance for making the whole suit.

13. Having knave, ten, eight, and small trumps, lead the knave. For on the return of trumps you probably may finesse the eight to advantage.

14. Having knave, ten, and three small trumps, lead the knave. Because it will most distress your adversaries, unless two honours are held on your right hand; the odds against which are about 3 to 1.

15. Having only small trumps, play the highest. By which you will support your partner all you can.

16. Having a sequence, begin with the highest. By this means your partner is best instructed how to play his hand, and cannot possibly be injured.

17. If any honour be turned up on your left, and the game much against you, lead a trump the first opportunity. For your game being desperately bad, this method is the most likely to retrieve it.

18. In all other cases it is dangerous leading through an honour, unless you are strong in trumps, or have a good hand. Because all the advantage of trumping through an honour lies in your partner's finessing.

19. Supposing hereafter it is proper to lead trumps. If an honour is turned up on your left, and you hold only one honour with a small trump, throw off the honour, and next the small one. Because it will greatly strengthen your partner's hand, and cannot hurt your own.

20. If an honour be turned up on the left, and you hold a sequence, lead the highest of it. Because it will prevent the last hand from injuring your partner.

21. If a queen be turned up on the left, and you hold ace, king, and a small one, lead the small trump. Because you will have a chance of getting the queen.

22. If a queen be turned up on your left, and you hold the knave, with small ones, lead the knave. For the knave can be of no service, since the queen is on your left.

23. If an honour be turned up by your partner, and you are strong in trumps, lead a small one; but if weak in them, lead the best you have. By this play the weakest hand will support the strongest.

24. If an ace be turned up on the right, and you hold king, queen, and knave, lead the knave. For it is a secure lead.

25. If an ace be turned up on the right, and you hold king, queen, and ten, lead the king; and upon the return of trumps play the ten. For by this means you show a great strength to your partner, and will probably make two tricks in them.

26. If a king be turned up on the right, and you hold queen, knave, and nine, lead the knave; and upon the return of trumps play the nine. Because it may prevent the ten from making.

27. If a king be turned up on the right, and you hold knave, ten, and nine, lead the nine; and upon the return of trumps play the ten. Because this method will best disclose your strength in trumps.

28. If a queen be turned up on the right, and you hold ace, king, and knave, lead the king; and upon the return of trumps play the knave. Because you are then certain to make the knave.

29. If a queen be turned up on the right, and you hold ace, king, and small ones, lead the king; and upon the return of trumps you may finesse, unless the queen falls. For otherwise the queen will make a trick.

30. If a knave be turned up on the right, and you hold king, queen, and ten, lead the queen; and upon the return of trumps play the ten. For by this means you will make the ten.

31. If a knave be turned up on the right, and you hold king, queen, and small ones, lead the king; and if that comes home, play a small one. For it is probable your partner holds the ace.

32. If a knave be turned up on the right, and you hold king and ten, or queen and ten, with two small cards, lead a small one; and upon the return of trumps play the ten. For it is 5 to 4 that your partner holds one honour.

When you turn up an honour.—1. If you turn up an ace, and hold only one small trump with it, if either adversary leads the king, put on the ace. For it cannot do greater injury.

2. If you turn up an ace, and hold two or three small trumps with it, and either adversary leads the king, put on a small one. For if you play the ace, you give up the command in trumps.

3. If you turn up a king, and hold only one small trump with it, and your right-hand adversary leads a trump, play the king. This case is somewhat doubtful, and very good players think differently.

4. If you turn up a king, and hold two or three small trumps with it, if your right-hand adversary leads a trump, play a small one. It being the best way of securing your king.

5. If you turn up a queen or knave, and hold only small trumps with it, if your right-hand adversary leads a trump, put on a small one. It being the securest play.

6. If you hold a sequence to the honour turned up, play it last. By this mean your partner will be the best acquainted with your strength in trumps.

Of playing for the odd trick.—1. Be cautious of trumping out, notwithstanding you have a good hand. For since you want the odd trick only, it would be absurd to play a great game.

2. Never trump out if your partner appears likely to trump a suit. For it is evidently best to let your partner make his trumps.

3. If you are moderately strong in trumps, it is right to force your partner. For by this mean you probably gain a trick.

4. Make your tricks early, and be cautious of finessing. That you may not be greatly injured, though you fail of making the odd trick.

5. If you hold a single card of any suit, and only two or three small trumps, lead the single card. For it will give you a chance of making a small trump.

General rules.—1. Be very cautious how you change suits, and let no artifice of the adversary induce you to it.

2. Keep a commanding card to bring in your strong suit when the trumps are out, if your hand will admit of such pretensions.

3. Never keep back your partner's suit in trumps, but return them the first opportunity.

4. If you hold a strong suit and but few trumps, rather force your adversaries than lead trumps, unless you are strong in the other suits likewise.

5. Be sure to make the odd trick, when in your power.

6. Always consider the scores, and play accordingly.

7. In a backward game, you may often risk one trick in order to win two; but in a forward game you are to be more cautious, unless you have a good probability of getting up.

8. In returning your partner's lead, play the best you have, when you hold but three originally.

9. Remember what cards drop from each hand, how many of each suit are out, and what is the best remaining card in each.

10. Lead not originally from a suit of which you have ace and queen, ace and knave, or king and knave; if you hold another moderate suit.

11. If neither of your adversaries will lead from the above suits, do it yourself with a small card.

12. You are strong in trumps with five small ones, or three small ones and one honour.

13. Do not trump a card when you are strong in trumps, and more especially if you hold a strong suit.

14. If you hold only a few small trumps, make them if you can.

15. If your partner refuse to trump a suit of which he knows you have not the best, lead him your best trump the first opportunity.

16. If your partner have trumped a suit, and refuse to play trumps, lead him that suit again.

17. Never force your partner but when you are strong in trumps, unless you have a renounce yourself, or want only the odd trick.

18. If the adversaries trump out, and your partner have a renounce, give him that suit when you get the lead, if you think he has a small trump left.

19. Lead not from an ace suit originally, if you hold four in number of another suit.

20. When trumps are either returned by your partner, or led by the adversaries, you may finesse deeply in them, keeping the command all you can in your own hand.

21. If you lead the king of any suit, and make it, you must not thence always conclude that your partner holds the ace.

22. It is sometimes proper to lead a thirteenth card, in order to force the adversary, and make your partner the last player.

23. If weak in trumps, make your tricks soon; but when strong, you may play a more backward game.

24. Keep a small card of your partner's first lead, if possible, in order to return it when the trumps are out.

25. Never force your adversary with your best card of a suit, unless you have the second best also.

26. In your partner's lead, endeavour to keep the command in his hand rather than in your own.

27. If you have a saw, it is generally better to pursue it than to trump out; although you should be strong in trumps with a good suit.

28. Keep the trump you turn up as long as you properly can.

29. When you hold all the remaining trumps, play one of them to inform your partner; and then put the lead into his hand.

30. It is better to lead from ace and nine, than from ace and ten.

31. It is better to lead trumps through an ace or king than through a queen or knave.

32. If you are reduced to the last trump, some winning cards, and one losing card only, lead the losing card.

33. If only your partner has trumps remaining, and he leads a suit of which you hold none; if you have a good quart (or sequence of four) throw away the highest of it.

34. If you have an ace with one small card of any suit, and several winning cards in other suits; rather throw away some winning card than that small one.

35. If you hold only one honour with a small trump, and wish the trumps out, lead the honour.

36. If trumps have been led thrice, and there be two remaining in the adversaries hands, endeavour to force them out.

37. Never play the best card of your adversaries lead at second hand, unless your partner has none of that suit.

38. If you have four trumps and the command of a suit whereof your partner has none, lead a small card in order that he may trump it.

39. If you hold five trumps with a good hand, play trumps, and clear your adversaries hands.

40. If you hold the ace and three small trumps when the adversaries lead them, and have no particular reason for stopping the suit, let them quietly make king and queen, and on the third round play the ace.

41. Supposing yourself leader with three small trumps, one strong suit, one moderate suit, and a single card, begin with the strong suit, and next lead the single card.

42. Be careful how you sort your cards, lest a sharp and curious eye should discover the number of your trumps.

PARTICULAR GAMES OR CASES.

1. *To assure yourself that your partner has no more of the suit played either by yourself or him.*—Suppose you lead from queen, ten, nine, and two small cards of any suit, the second hand puts on the knave, your partner plays the eight: in this

case, you having queen, ten, and nine, it is a demonstration, that he can have no more of that suit. Therefore you may then play your game accordingly, either by forcing him to trump that suit, if you are strong in trumps, or by playing some other suit.

2. Suppose you have king, queen, and ten of a suit, and you lead your king, your partner plays the knave, this demonstrates he has no more of that suit.

3. Suppose you have king, queen, and many more of a suit, and you begin with the king, in some cases it is good play in a partner, when he has the ace, and one small card in that suit only, to win his partner's king with his ace: for suppose he is very strong in trumps, by taking his partner's king, he trumps out, and after clearing the board of trumps, returns his partner's lead; and having parted with the ace, has made room for his partner to make that whole suit, which possibly could not have been done, if he had kept the command in his own hand.

And supposing your partner has no other good card besides that suit, nothing is lost by the ace taking the king; but if you have a good card to bring in that suit, you gain all the tricks made in the same by this method of play. And as your partner has taken your king with the ace, and trumps out upon it, you have reason to judge he has one of that suit to return; therefore do not throw away any of that suit, even to keep a king or queen guarded.

4. *To endeavour to deceive and distress your adversaries, and to demonstrate your game to your partner.*—Suppose I play the ace of a suit of which I have ace, king, and three small ones; the last player does not choose to trump, having none of the suit; if I am not strong enough in trumps, I must not play out the king, but keep the command of that suit in my hand, by playing a small one, in order to weaken his game.

5. If a suit be lead of which I have none, and a moral certainty that my partner has not the best of that suit, in order to deceive the adversary, I throw away my strong suit; but to clear up doubts to my partner when he has the lead, I throw away my weak suit. This method of play will generally succeed, unless against very good players; and even with them, you will oftener gain than lose.

6. *To run the risk of losing one trick only to gain three.*—Suppose clubs to be trumps, a heart is played by your adversary; your partner having none of that suit, throws away a spade; you then judge his hand is composed of trumps and diamonds; and suppose you win that trick, and being too weak in trumps, dare not force him; and suppose you shall have king, knave, and one small diamond; and further, your partner to have queen, and five diamonds; in that case, by throwing out your king in your first lead, and your knave in your second, your partner and you may win five tricks in that suit; whereas if you had led a small diamond, and your partner's queen having been won with the ace, the king and knave remaining in your hand, obstruct the suit: and though he may have the long trump, yet by playing a small diamond, and his long trump having been forced out of his hand, you lose by this method of play three tricks in that deal.

7. Suppose, in the like case of the former, you should have queen, ten, and one small card in your partner's strong suit, which is to be discovered by the former example; and that your partner has knave and five smal cards in his strong suit; you having the lead are to play your queen, and when you play again, your ten; and suppose him to have the long trump, by this method he makes four tricks in that suit; but should you play a small card in that suit, his knave being gone, and the queen remaining in your hand in the second round, and the long trump forced out of his hand, the queen remaining in yours obstructs the suit, by which method of play you lose three tricks in that deal.

8. In the former examples you have been supposed to have had the lead, and an opportunity of throwing out the best cards in your hand of your partner's strong suit, in order to make room for the whole suit: we will now suppose your partner is to lead, and in the course of play, it appears to you that your partner has one great suit; for instance, ace, king, and four small ones, and that you have queen, ten, nine, and a very small one of that suit; when your partner plays the ace, you are to play the nine; when he plays the king, you are to play the ten; by which means, in the third round, you make your queen, and having a small one remaining, do not obstruct your partner's great suit; whereas if you had kept your queen and ten, and the knave had fallen from the adversaries, you had lost two tricks in that deal.

9. Suppose, in the course of play, you find your partner to have one great suit, and that you have king, ten, and a small one of the same; your partner leads the ace; in that case play your ten, and in the second round your king: this prevents a possibility of obstructing your partner's great suit.

10. Suppose your partner has ace, king, and four small cards in his great suit, and that you have queen, ten, and a small card in the same; when he plays his ace, do you play your ten, and when he plays his king, you play your queen; by which method you only risk one trick to get four.

11. Now suppose you have five cards of your partner's strong suit; viz. queen, ten, nine, eight, and a small one, and that your partner has ace, king, and four small ones; when your partner plays the ace, do you play the eight; when he plays the king, do you play the nine; and in the third round, nobody having any of that suit, except your partner and yourself, proceed then to play the queen, and next the ten; and having a small one remaining, and your partner two, you thereby gain a trick.

12. *When either of your adversaries turns up an honour.*—Suppose the knave is turned up on your right-hand, and that you have king, queen, and ten; in order to win the knave, begin with your king; by which method your partner may suppose you have queen and ten remaining, especially if you have a second lead, and do not proceed to your queen.

13. The knave being turned up as before, and that you have ace, queen, and ten, by playing your queen, it answers the like purpose of the former rule.

14. If the queen be turned upon your right-hand, and that you have ace, king, and knave, by playing your king it answers the like purpose.

15. Suppose an honour is turned up on your left-hand, and you hold no honour, in that case lead through that honour; but if you should hold an honour, (except the ace) you must be

cautious how you play trumps, because in case your partner holds no honour, your adversary will return your own game upon you.

16. *Cases, and calculations, demonstrating when it is proper, at second hand, to put up the king, queen, knave, or ten, with one small card of any suit, &c.*—Suppose you have four small trumps, in the three other suits you have one trick secure in each: and suppose your partner has no trump, then the remaining nine trumps must be divided between your adversaries; suppose five in one hand; and four in the other; as often as you have the lead, play trumps: and should you have four leads, in that case your adversaries make only five tricks out of nine trumps; whereas if you had suffered them to make their trumps single, they might possibly have made nine.

This example shews the necessity of taking out two trumps for one upon most occasions.

There is an exception to the foregoing rule; if you find that your adversaries are very strong in any particular suit, and that your partner can give you no assistance in that suit, in such a case you are to examine your own, and also your adversaries' scores; because by keeping one trump in your hand to trump such suit, it may be either a means to save or win a game.

17. Suppose you have ace, queen, and two small cards of any suit; your right-hand adversary leads that suit; in that case, do not put on your queen, because it is an equal wager that your partner has a better card than the third hand; if so, you have the command of that suit.

An exception to the foregoing rule is, in case you want the lead, then play your queen.

18. Never choose to lead from king, knave, and one small card in any suit, because it is 2 to 1 that your partner has not the ace, and also 32 to 25, or about 5 to 4, that he has ace or queen; and therefore, as you have only about 5 to 4 in your favour, and as you must have four cards in some other suit, suppose the ten to be the highest, lead that suit, because it is an equal wager that your partner has a better card than the last player, and if the ace of the first mentioned suit lies behind you, which is an equal wager it should to happen, in case your partner has it not; in this case, on your adversaries leading this suit, you probably make two tricks in it.

19. Suppose in the course of play it appears that your partner and you have four or five trumps remaining, when your adversaries have none, and that you have no winning card, but have reason to judge that your partner has a thirteenth or some other winning card in his hand; in that case, play a small trump, to give him the lead, in order to throw away any losing card in your hand, upon such thirteenth or other good card.

20. *Cases for putting up at second hand, king, queen, knave, or ten of any suit, &c.*—Suppose you have the king and one small card of any suit, and that your right-hand adversary plays that suit; if he is a good player do not put on the king, unless you want the lead, because a good player seldom leads from a suit of which he has the ace, but keeps it to bring in his strong suit after the trumps are out.

21. Suppose you have a queen, and one small card of any suit, and that your right-hand adversary leads the same; do not put on your queen, because, suppose the adversary has led from ace and knave, in that case, upon the return, your adversary finesses the knave, which is generally good play, especially if his partner has played the king, you thereby make your queen; but by putting on the queen, it shews your adversary that you have no strength in that suit, and consequently puts him upon finessing upon your partner throughout that whole suit.

22. Likewise observe, in case you should have the knave or ten of any suit, with a small card of the same, it is generally bad play to put up either of them at second hand, because it is five to two that the third hand has either ace, king, or queen of the suit led; therefore, as the odds against you are five to two, though you should succeed sometimes by this method of play, yet in the main you must be a loser; because it demonstrates to your adversaries, that you are weak in that suit, and consequently they finesse upon your partner throughout that whole suit.

23. Suppose you have ace, king, and three small cards of any suit that your right-hand adversary leads; upon which you play your ace, and your partner the knave. In case you are strong in trumps return a small one in that suit, in order to let your partner trump: thereby you keep the command in your own hand, and at the same time give your partner an intimation that you are strong in trumps, therefore he may play his game accordingly, either in attempting to establish a saw, or by trumping out to you, if he has either strength in trumps, or the command of the other suits.

2. Suppose A and B's game is scored 6, the adversaries C and D 7, and that nine rounds are played out, of which A and B have won seven tricks, and no honours are reckoned in that deal; in this case A and B have won the odd trick, which puts their game upon an equality; and suppose A to have the lead, and has two of the smallest trumps remaining with two winning cards of other suits; and C and D have the two best trumps between them, with two other winning cards in their hands. It is 11 to 3 that C has not the two trumps; and likewise 11 to 3 that D has them not: the odds being so much in A's favour to win the whole stake, it is his interest to play a trump; for suppose the stake to be 70*l.* depending, A and B win the whole, if he succeeds by this method; but, on the contrary, should he play the close game, by forcing C or D to trump first, he having won the odd trick already, and being sure of winning two more in his own hand, by this method his game will be scored 9 to 7, which is about 3 to 2, and therefore A and B's share of the 70*l.* will amount only to 42*l.*, and A only secures 7*l.* profit; but in the other case, upon supposition that A and B have 11 to 3 of the stake depending, as aforesaid, A, by playing his trump, is entitled to 35*l.* out of the 70*l.* depending.

25. *Game when an ace, king, or queen, are turned up on your right-hand.*—Suppose the ace is turned up on your right-hand, and that you have the ten and nine of trumps only, with ace, king, and queen of another suit, and eight cards of no value: begin with the ace of the suit of which you have the ace, king, and queen, which is an information to your partner that you have the command of that suit; then play the ten of trumps, because it is 5 to 2 that your partner has king, queen, or knave; and though it is about 7 to 2 that your partner has not two honours, yet, should he chance to have them,

and they prove to be the king and knave, in that case, as your partner will pass your ten, and it is 13 to 12 against the last player holding the queen of trumps, upon supposition your partner has it not; then when your partner has the lead, he plays to your strong suit, and upon your having the lead, play the nine of trumps, which puts it in your partner's power to be almost certain of winning the queen, if he lies behind it.

The foregoing case shews how an ace turned up against you may be made less beneficial to your adversaries.

26. If the king or queen be turned up on your right-hand, the like method of play may be made use of; but always consider your partner's skill, because a good player will usually make a proper use of such play, but a bad one seldom.

27. Suppose your right-hand adversary leads the king of trumps, and that you have the ace and four small trumps, with a good suit; in this case pass the king; and though he should besides have queen and knave of trumps with one more, yet if a moderate player, he will play the small one, imagining that his partner has the ace: when he plays the small one, pass it also, because it is an equal chance that your partner has a better trump than the last player. If so, and a tolerable player, he will judge you have a good reason for this method, and consequently, if he has a third trump remaining, will play it, if not, he will play his best suit.

28. A critical case to win an odd trick. Suppose A and B partners against C and D, and the game to be nine all, and every trump out, A being the last player, has the ace and four other small cards of a suit in his hand, and one thirteenth card remaining: B has only two small cards of A's suit; C has queen and two other small cards of that suit; D has king, knave, and one small card of the same. A and B have won three, C and D four tricks; therefore A is to win four tricks in order to obtain the game. C leads this suit, and D puts on the king; A gives him that trick, D returns that suit; A passes it, and C plays his queen: thus C and D have won six tricks, and C imagining the ace of that suit to be in his partner's hand, returns it; by which means A wins the four last tricks, and consequently the game.

29. Suppose you have the king and five small trumps, and your right-hand adversary plays the queen; in that case do not put on the king, because it is an equal wager that your partner has the ace; and suppose your adversary should have queen, knave, ten, and one small trump, it is also an equal wager that the ace lies single, either in your adversary's hand or partner's; in either of which cases it is bad play to put on your king; but if the queen of trumps is led, and you have the king, with only two or three trumps, it is then best to put on the king, because it is good play to lead from the queen and one small trump only: and in that case should your partner have the knave, and your left-hand adversary hold the ace, you neglecting to put on the king lose a trick.

30. *The ten or nine being turned up on your right-hand.*—Suppose the ten turned up, and that you have king, knave, nine, and two small trumps, with eight other cards of no value, and that it is proper to lead trumps; in that case, begin with the knave, in order to prevent the ten from making a trick; and though it is but about 5 to 4 that your partner holds an honour, yet if that should fail, by finessing the nine on the return of trumps from your partner, you have the ten in your power.

31. The nine being turned up, and you have ten, eight, and two small trumps, by leading the ten, it answers the like purpose.

32. Make a wide difference between a lead of choice, and a forced lead of your partner's; because, in the first case he is supposed to lead from his best suit, and finding you deficient in that, and not being strong enough in trumps, and not daring to force you, he then plays his next best suit; which demonstrates that he is weak in trumps: but should he persevere, by playing off his first lead, judge him strong in trumps, and play your game accordingly.

33. Nothing is more pernicious than to change often, because in every new suit you run the risk of giving your adversary the tenace; and, therefore, though you lead from a suit of which you have the queen, ten, and three small ones, and your partner puts on the nine only, in that case, if you should happen to be weak in trumps, and have no tolerable suit to lead from, it is best to pursue the lead of that suit by playing your queen, which leaves it in your partner's option whether he will trump or not, in case he has no more of that suit; but in your second lead, in case you should happen to have the queen or knave with one small card only of any other suit, it would be better to lead from your queen or knave, it being 5 to 2 that your partner has one honour at least in the same.

34. When you have ace, king, and one small card of any suit, with four trumps; if your right-hand adversary leads that suit, pass it, because it is an equal wager that your partner has a better card in the same than the third hand: if so, you gain a trick: if otherwise, as you have four trumps, you may not lose, because you will probably have the long trump.

35. *Cautions not to part with the command of your adversaries great suit, &c.*—In case you are weak in trumps, and it does not appear your partner is very strong in them, be cautious how you part with the command of your adversary's great suit; for suppose your adversary plays the ace of a suit of which you have the king, queen, and one small card only, and upon playing the same suit again you put on your queen, which makes it almost certain to your partner that you have the king, and your partner refuses to that suit, do not play the king, because if the leader of that suit, or his partner, has the long trump, you risk the losing of three tricks to get one.

36. Suppose your partner has ten cards remaining, and it appears to you that they consist of trumps and one suit only; and suppose you should have king, ten, and one small card of his strong suit, with queen and two small trumps; in this case you are to judge he has five cards of each, and therefore you ought to play out the king of his strong suit; and if you win that trick, next throw out the queen of trumps; if that likewise comes home, proceed to play trumps: this method may be made use of at any score of the game, except at 4 and 9.

37. The trump turned up to be remembered. It is necessary that the trump turned up should be remembered, both by the dealer and his partner. The dealer should always so place that card, as to be certain; for suppose it to be

only a five, and that the dealer has two more, viz. the six and nine, if his partner trumps out with ace and king, he ought to play his six and nine; because supposing your partner had ace, king, and four small trumps, by knowing you have the five remaining, you may win many tricks.

38. Your right-hand adversary leads a suit of which you have the ten and two small ones; the third hand puts on the knave, your partner wins it with the king; when your adversary leads that suit again, and plays a small one, put on your ten, because it may save your partner's ace, upon supposition that your right-hand adversary led from the queen.

39. Suppose you have the best trump, and the adversary A has one trump only remaining, and that it appears to you your adversary B has a great suit; in this case, though you permit A to make his trump, yet by keeping the trump in your hand, you prevent the adversary B from making his great suit; whereas, if you had taken out A's trump, it had made only one trick difference; but by this method you probably save three or four tricks.

40. The following case happens frequently. That you have two trumps remaining when your adversaries have only one, and it appears your partner has one great suit; in this case always play a trump, because, by removing the trump out of your adversary's hand, there can be no obstruction to your partner's suit.

41. Suppose you have three trumps when no one else has any, and have only four cards of any certain suit remaining; in this case play a trump, which shews your partner that you have all, and also gives a fair chance for one of your adversaries to throw away one card of the aforesaid suit; by which means, supposing that suit to have been once led, and one thrown away, makes five, and four remaining in your hand makes nine, there being only four remaining between three hands, and your partner having an equal chance to hold a better card in that suit than the last player, it therefore follows that you have an equal chance to make three tricks, which probably could not otherwise have been done.

42. Suppose you have five trumps, and six small cards of any suit, and are to lead; then lead from that of which you have six, because, as you are deficient in two suits, your adversary will probably trump out, which is playing your own game; whereas, had you begun with playing trumps, they would force you, and consequently destroy your game.

43. *How to play for an odd trick.*—Suppose you are elder hand, and have the ace, king, and three small trumps, with four small cards of another suit, three small cards of the third, and one small card of the fourth suit; lead the single card, which, if won by the last player, puts him upon playing trumps, or to play to your weak suit, in which case you gain the tenace.

44. Suppose your partner is to lead, and plays the ace of the suit of which you have only one, and proceeds to play the king of the same, it and that your right-hand adversary trumps with the queen, knave, or ten; do not overtrump him, but throw away a small card of your weakest suit; because it makes your partner the last player, and gives him the tenace in your weak suits.

45. *Upon supposition you want four or five points, and are elder hand.*—Play a small trump, and if your partner has a better trump than the last player, and returns the lead, put on the king, and then proceed to play the suit of which you have four in number.

These examples duly attended to, on all parts of the game, must be of great consequence to the player; because when he has no good suit to lead, his partner, being the last player, gains the tenace in his weak suits.

46. A and B are partners against C and D, twelve trumps are played out, and seven cards only remain in each hand, of which A has the last trump, and also the ace, king, and four small cards of a suit. A ought to play a small card of that suit, because it is an equal wager that his partner has a better card in it than the last player; and in this case, if four cards of that suit should happen to be in either of the adversaries hands, he will be able to make five tricks: when, if he played off his ace and king, he had made only two. If neither of the adversaries have more than three cards in that suit, A has an equal chance to win six tricks in it.

47. Suppose A and B are partners against C and D, and that eight trumps are played out, and that A has four of those remaining, C having the best trump, and to lead. C ought not to play his trump to take out one of A's, because he would leave three trumps in A's hand; but in case A's partner has any great suit to make, C, keeping the trump in his own hand, can prevent him from making that suit by trumping it.

48. A case of curiosity. Suppose three hands of cards, containing three cards in each hand: let A name the trumps, and let B choose which hand he pleases, A having his choice of either of the other two hands, wins two tricks.

Clubs are to be trumps.

First hand, ace, king, and six of hearts.

Second hand, queen, and ten of hearts, and ten of trumps.

Third hand, nine of hearts, and two and three of trumps.

The first hand wins of the second. The second of the third. And the third of the first.

LAWS OF WHIST.

1. *Of dealing.*—If a card is turned in dealing, the adverse party may call a new deal; but if either of them have been the cause of turning up such card, in that case the dealer has his option.

2. If a card is faced in the deal, there must be a new deal, unless it is the last card.

3. Every person ought to see that he has thirteen cards dealt; therefore, if any one should happen to have only twelve, and does not find it out till several tricks are played, and the rest of the players have their right number, the deal stands good; and also the person who plays with twelve cards is to be punished for each revoke he has made; but if any of the players should happen to have fourteen cards, in that case the deal is lost.

4. The dealer ought to leave in view upon the table his trump card, till it is his turn to play; and after he has mixed it with his other cards, nobody is entitled to demand what card is turned up, but may ask what is trumps. This consequence attends such a law, that the dealer cannot name a wrong card, which otherwise he might have done.

5. None of the players ought to take up or look at their cards while any person is dealing;

and if the dealer should happen to miss deal, in that case he shall deal again, unless it arises from his partner's fault; and if a card is turned up in dealing, no new deal shall be called unless the partner has been the cause of it.

6. If the dealer, instead of turning up the trump, puts the trump card upon the rest of his cards, with the face downward, he is to lose deal.

7. *Of playing out of turn.*—If any person plays out of his turn, the card so played may be called at any time in that deal, provided it does not cause a revoke; or either of the adversaries may require of the person who ought to have lead, to play the suit the said adversary may choose.

8. A and B are partners against C and D; A plays the ten of a suit, the adversary C plays the knave of the same, B plays a small card of the same, but before D plays, his partner C leads another card, the penalty shall be in the option of A or B to oblige D to win the trick if he can.

9. A and B are partners against C and D; A leads a club, his partner B plays before the adversary C; in this case D has a right to play before his partner C, because B played out of his turn.

10. If any card of a suit is led, and the last player plays out of his turn, whether his partner has any of the suit led or not, provided you do not make him revoke, he is neither entitled to trump it, nor to win the trick.

11. *Of revoking.*—If a revoke happens to be made, the adversaries may add 3 to their own score, or take three tricks from the revoking party, or take down 3 from their score; and the revoking party, provided they are up, notwithstanding the penalty, must remain at 9; the revoke takes place of any other score of the game.

12. If any person revokes, and discovers it before the cards are turned, the adverse party may call the highest or lowest card of the suit led, or have their option to call the card then played at any time when it does not cause a revoke.

13. No revoke to be claimed till the trick is turned and quitted, or the party who revoked, or his partner, has played again.

14. If any person claims a revoke, the adverse party are not to mix their cards, upon forfeiture of the revoke.

15. No revoke can be claimed after the cards are cut for a new deal.

16. *Of calling honours.*—If any person calls at any point of the game except 8, either of the adverse parties may call a new deal; and they are at liberty to consult each other whether they will have a new deal.

17. After the trump card is turned up, no person must remind his partner to call, on penalty of losing a point.

18. If the trump card is turned up, no honours in the preceding deal can be set up, unless they were before claimed.

19. If any person calls at the point of 8, and his partner answers, and both the opposite parties have thrown down their cards, and it appears that the other side had not two by honours; in this case the adversaries may consult with one another, and are at liberty to stand the deal or not.

20. And if any person answers when he has not an honour, the adverse party may consult each other, and are at liberty to stand the deal or not.

21. If any one calls at 8, after he has played, it shall be in the option of the adversaries to call a new deal.

22. *Of separating and shewing the cards.*—If any person separates a card from the rest, the adverse party may call it provided he names it, and proves the separation; but in case he calls a wrong card, he or his partner are liable for once to have the highest or lowest card called in any suit led during the deal.

23. If any person throws his cards upon the table, with their faces upwards, upon supposition that he has lost the game, the adversaries have it in their power to call any of the cards when they think proper, provided they do not make the party revoke, and he is not to take up his cards again.

24. If any person is sure of winning every trick, he may shew his cards upon the table; but he is then liable to have all his cards called.

25. *Of omitting to play to a trick.*—A and B are partners against C and D; A leads a club, C plays the ace, B plays a club, and D, partner to C, takes up the trick without playing any card; A, and the other players, play on, till it appears D has one more card than the rest: penalty to be in the option of the adversaries to call a new deal.

26. *Respecting who played any particular card.*—Each person in playing ought to lay his card before him; after he has done so, if either of the adverse parties mix their cards with his, his partner is entitled to insist that each person lay his card before him, but not to inquire who played any particular card.

EXPLANATION OF TECHNICAL WORDS.

Finessing, means endeavouring to gain an advantage thus: when a card is led, and you have the best and third best of that suit, you put your third best card upon that lead, and run the risk of your left-hand adversary having the second best; if he has it not, which is 2 to 1 against him, you are then sure of gaining a trick.

Forcing, means obliging your partner or adversary to trump a suit of which he has none. The cases mentioned in this treatise will shew when it is proper to force either of them.

Long trump, means having one or more trumps in your hand, when all the rest are out.

Loose card, is a card of no value, and, consequently, the properest to throw away.

Points, ten of them make a game; as many as are gained by tricks or honours, so many points are set up to the score.

Quart, is a sequence of any four cards immediately following one another in the same suit.—*Quart-major*, is a sequence of ace, king, queen, and knave.

Quint, is a sequence of any five cards immediately following one another in the same suit.—*Quint-major*, is a sequence of ace, king, queen, knave, and ten.

Reverse, means only playing the hand in a different manner; that is, if you are strong in trumps, you play one away; if weak in trumps, you play the reverse, viz. another.

See-saw, is when each partner trumps a suit, and plays those suits to one another, for that purpose.

Score, is the number of points set up, ten of which make a game.

Slam, is when either party win every trick.

Tenace, is having the first and third best cards and being last player, and, consequently, catching the adversary when that suit is played: as, for instance, in case you have ace and queen of any suit, your adversary leads, you must win those two tricks: and so of any other tenace in inferior cards.

Terce, or tierce, is a sequence of any three cards immediately following one another in the same suit. *Terce-major*, is a sequence of ace, king, and queen.

AN ARTIFICIAL MEMORY FOR PLAYERS.

1. Place, of every suit in your hand, the worst to the left hand, and the best (in order) to the right; and the trumps, in the like order, always to the left of all the other suits.

2. If in the course of play you have the best card remaining in any suit, put the same to the left of your trumps.

3. And if you find you are possessed of the second best card of any suit, place it on the right of your trumps.

4. And if you have the third best card of any suit, place a small card of that suit, between the trumps, and that third best, to the right of the trumps.

5. To remember your partner's first lead, place a small card of that suit in the midst of your trumps, and if you have but one trump, on the left of it.

6. When you deal, put the trump turned up to the right of all your trumps, and keep it as long as you can, that your partner may, knowing you have that trump left, play accordingly.

7. *To find where your adversaries revoke.*—Suppose two suits on the right-hand to represent your adversaries in the order they sit, as to your right and left-hand. When you suspect either of them to have made a revoke, clap a small card of that suit amongst the cards representing that adversary, by which you record not only that there may have been a revoke, but also who made it, and in what suit.

If the suit representing the adversary that made the revoke, happen to be the same revoked in, change that suit for another, and put a small card of the suit revoked in, in the middle of that exchanged suit, and if you have not a card remaining of that suit reverse a card of any other you have, (except diamonds) and place it there.

8. As you have a way to remember your partner's first lead, you may also record in what suit either of your adversaries made their first lead, by putting the suit so led in the place which in your hand represents that adversary; and if other suits were already placed to represent them, then exchange those for the suits in which each of them makes his first lead.

The foregoing method is to be taken, when more necessary to record your adversary's first lead, than to endeavour to find out a revoke.

CALCULATIONS SHEWING THE CHANCES OF YOUR PARTNER HAVING ONE, TWO, OR THREE CERTAIN CARDS.

1. What is the chance of your friend having one certain card?

against him   for him

Answer.

That he has it not, is ....2 to 1

2. What is the chance of having two certain cards?

against him   for him

Answer.

That he has one of them only, is......31 to 26
That he has not both of them ....17 ... 2
But that he has one or both, is about 5 to 4, or ....25 ... 32

3. What are the chances of having three certain cards?

Answer.

That he holds one of them only, is 325 for him to 378 against him, or about 6 ... 7
That he has not two of them only, is 156 for him to 547 against him, or about ....2 ... 7
That he has not all three of them, is 22 for him to 681 against him, or about 1 ... 31
But that he has one or two of them, is 481 for him to 222 against him, or about ....13 ... 6
And that he has one, two, or all three of them, is about .... 5 ... 2

Explanation and application of the calculations.

1*st.* *Calculation.*—It is 2 to 1 that my partner has not one certain card.

To apply this, suppose the right hand adversary leads a suit, of which you have the king and one small card only; observe that it is 2 to 1, by putting on your king, that the left-hand adversary cannot win it.

Again, suppose you have the king and three small cards of any suit, likewise the queen and three small cards of another; lead from the king, because it is 2 to 1 that the ace does not lie behind you; but it is 5 to 4 that the ace or king of any suit lies behind you, and consequently, by leading from your queen, you play to a disadvantage.

2*d* *Calculation.*—It is 5 to 4 at least, that your partner has one out of any two certain cards; the like odds are in favour of your adversaries; therefore, suppose you have two honours of any suit, and knowing it is 5 to 4 that your partner holds one of the other two, you by this play your game to a greater degree of certainty.

Again, suppose you have the queen and one small card only, in any suit, and that your right-hand adversary leads the same, if you put on your queen, it is 5 to 4 that your left-hand adversary can win it, and therefore you play to disadvantage.

3*d* *Calculation.*—It is 5 to 2 that your partner has one out of any three certain cards.

Therefore, suppose you have the knave and one small card dealt, and that your right-hand adversary leads from that suit, it is 5 to 2 that your left-hand adversary has either ace, king, or queen of the suit led, and therefore if you put on the knave, you play against yourself; besides, by making a discovery, your right-hand adversary finesses upon your partner throughout that whole suit.

To explain the necessity of putting on the lowest of sequences, suppose that your adversary led a suit of which you have the king, queen, and knave, or queen, knave, and ten; by putting on your knave of one suit, or your ten of the other, it gives your partner an opportunity of calculating the odds in that, and also in all inferior suits of which you have sequences.

Suppose that you have the ace, king, and two small trumps, with a quint-major of five other winning cards in any other suit, and have played trumps two rounds, and each person followed suit; in this case there are eight trumps out, and two remaining in your hand, which make ten, and three trumps divided between the remaining three players, of which three, the odds are 5 to 2 that your partner has one; and, therefore, out of seven cards in your hand, you are entitled to win five tricks.

SOME COMPUTATIONS FOR LAYING WAGERS.

All with the deal.

The deal	is 21 to 20
1 love	11 ... 10
2	5 ... 4
3	3 ... 2
4	7 ... 4
5 is 2 to 1 of the game, and one of the lurch	2 ... 1
6	5 ... 2
7	7 ... 2
8	5 ... 1
9 is about	9 ... 2

2 to 1	is 9 to 8
3 ... 1	9 ... 7
4 ... 1	9 ... 6
5 ... 1	9 ... 5
6 ... 1	9 ... 4
7 ... 1	3 ... 1
8 ... 1	9 ... 2
9 ... 1 is about	4 ... 1

3 to 2	is 8 to 7
4 ... 2	4 ... 3
5 ... 2	8 ... 5
6 ... 2	2 ... 1
7 ... 2	8 ... 3
8 ... 2	4 ... 1
9 ... 2	7 ... 2

4 to 3	is 7 to 6
5 ... 3	7 ... 5
6 ... 3	7 ... 4
7 ... 3	7 ... 3
8 ... 3	7 ... 2
9 ... 3 is about	3 ... 1

5 to 4	is 6 to 5
6 ... 4	6 ... 4
7 ... 4	2 ... 1
8 ... 4	3 ... 1
9 ... 4 is about	5 ... 2

6 to 5	is 5 to 4
7 ... 5	5 ... 3
8 ... 5	5 ... 2
9 ... 5 is about	2 ... 1

7 to 6	is 4 to 3
8 ... 6	2 ... 1
9 ... 6 is about	7 ... 4

8 to 7 is above	3 to 2
9 ... 7 is about	12 ... 8

8 to 9 is about 3 and a half in the hundred, in favour of 8 with the deal; against the deal, the odds are still, though small, in favour of 8.

Calculations for the whole rubber.

Suppose A and B are at play, and that A is 1 game, and 8 love of the second game, with the deal.

Quere. What are the odds throughout the rubber?

First game love and 9 love of the second game (upon supposition of 9 love with the deal being nearly 6 to 1.)

First game and 9 love of the second game is nearly	13 to 1
First game and 8 love of the second game is a little more than the former	13 .. 1&c.
First game and 7 love of the second is nearly	10 .. 1
Do. and 6 love of the second is nearly	8 .. 1
Do. and 5 love of the second is nearly	6 .. 1
Do. and 4 love of the second is nearly	5 .. 1
Do. and 3 love of the second is nearly	4½ . 1
Do. and 2 love of the second is nearly	4 .. 1
Do. and 1 love of the second is nearly	7 .. 2

The above calculations are made with the deal.

Against the deal.

Suppose A and B at play, and that A is 1 game, and any number of points in the second.

First game and 9 love of the second is nearly	11 to 1
Do. and 8 love of the second game is a little more	11 .. 1
Do. and 7 love of the second game	9 .. 1
Do. and 6	7 .. 1
Do. and 5	5 .. 1
Do. and 4	4½ . 1
Do. and 3	4 .. 1
Do. and 2	7 .. 2
Do. and 1	6½ . 2

METHODS OF SCORING AT WHIST.

1	2	3	4	5	6	7	8	9
0	00	000	0000	0	0	00	000	0
				00	000	0	0	0
								0

0	0	0	00	0	0	0	0	00
	0	0	0	00	0	0	00	0
		0	0	0	00	00	0	0

To WHI′STLE. *v. n.* (hpıꞅꞇlan, Saxon.) 1. To form a kind of musical sound by an inarticulate modulation of the breath (*Milton*). 2. To make a sound with a small wind instrument. 3. To sound shrill (*Dryden*).

To WHI′STLE. *v. a.* To call by a whistle (*Addison*).

WHI′STLE. *s.* (hpıꞅꞇle, Saxon.) 1. Sound made by the modulation of the breath in the mouth (*Dryden*). 2. A sound made by a small wind instrument. 3. The mouth; the organ of whistling (*Walton*). 4. A small wind instrument (*Sidney*). 5. The noise of winds. 6. A call, such as sportsmen use to their dogs (*Hudibras*).

WHI′STLER. *s.* One who whistles (*Addison*).

WHISTON (William), was born, 1667, at Norton near Twycrosse, Leicestershire, and educated under his father, and afterwards at Tamworth school, and at Clare-hall, Cambridge. In 1693 he became fellow and soon after tutor, but the labour was too great for his constitution, and he resigned to become chaplain to bishop Moore. His New Theory of the Earth appeared in 1696, and excited general admiration. In 1698 he was presented by the bishop to Lowestoft in Suffolk, and he was invited in 1700 to Cambridge, to become deputy to sir Isaac Newton, whom he succeeded in the Lucasian professorship. About this time his attachment to the church of England began to waver; he pretended to discover that the two first centuries of the church were truly Eusebian and Arian, and that afterwards doctrines less congenial to Christianity had been adopted. These opinions were heard with astonishment by his friends, but he disregarded censure, and wrote warmly in support of his sentiments. This drew upon him the displeasure of the university, and in 1710 he was deprived of his professorship and banished from the precincts of Cambridge. Regardless of the disgrace, he retired to London, where he lectured on philosophy, astronomy, and divinity, and wrote on his favourite topic of primitive Christianity. The scanty pittance which he thus derived was scarce sufficient to supply him with necessaries, yet he was cheerful, and in the midst of his distresses he often found the hand of those who revered his learning and piety extended to relieve him. Though he regularly frequented the church of England, he at last forsook it in 1747, when the clergyman read in allusion to him as he supposed, the Athanasian creed, and he repaired to the baptist meeting, till, as he observed, he had an opportunity of setting up a more primitive congregation himself. He died after a week's illness, 1752, aged 84. He was, as bishop Hare observes, a fair unblemished character, who all his life had cultivated piety, virtue, and good learning. By his useful works of philosophy and mathematics, he endeavoured to display the glory of the great creator, and to his study of nature he early joined the study of the scriptures. The best of his works are, besides his Theory, Astronomical Lectures, 8vo. Translation of Josephus, with eight valuable Dissertations, 4 vols. 8vo.; Astronomical Principles of Religion; History of the Old and New Testament, 6 vols. 8vo.; Vindication of the Testimony of Phlegon; Memoirs of his own Life, 2 vols. 8vo. &c.

WHIT. *s.* (hpıꞇ, a thing, Saxon.) A point; a jot (*Davies*).

WHITBY, a seaport in the N. riding of Yorkshire, with a market on Saturday. It is seated near the mouth of the Esk, has a considerable manufacture of sailcloth, and a great traffic in the building of ships, and in the carrying business. In the neighbourhood are several large alum-works. Its harbour is the best on this coast, and has a fine pier; but it has no river communication with the inland country. Several ships are sent hence to the Greenland fishery. Whitby is the birthplace of that great circumnavigator, captain James Cook. In December 1787, a strong new-built quay, running parallel to a high cliff, and supporting a pile of building, eighty feet above the margin of the sea, fell with a thundering crash, followed by large masses of the cliff, containing stones from three to six tons weight. The remains of the massy church of an ancient abbey stood on this cliff, and the ground was observed to sink, at the distance of ten yards from its tower; but it stood till November 1794, when the greatest part of the W. end fell to the ground. Whitby is 48 miles N.N.E. of York, and 243 N. of London. Lon. 0. 24 W. Lat. 54. 30 N.

WHITBY (Dr. Daniel), a very learned English writer, was born in 1638, and bred at Oxford; where, in 1664, he was elected perpetual fellow of his college. He afterward became chaplain to Dr. Seth Ward, bishop of Salisbury; who collated him in 1668 to the prebend of Yatesbury in that church, and soon after to that of Husborn and Burbach. In 1672 he was admitted chanter of the said church, on the death of Mr. John South, and then, or soon after, rector of St. Edmund's church in Salisbury. He was made a prebendary of Taunton Regis in 1696, and died in 1726. He was ever strangely ignorant of worldly affairs, even to a degree that is scarcely to be conceived. His writings are numerous, and well known: particularly his Commentary on the New Testament.

WHITCHURCH, a decayed borough in Hampshire, with a market on Friday. It sends two members to parliament, and is 24 miles E. by N. of Salisbury, and 58 W. by S. of London. Lon. 1. 10 W. Lat. 51. 15 N.

WHITCHURCH, a town in Shropshire, with a market on Friday, 20 miles N. of Shrewsbury, and 161 N.W. of London. Lon. 2. 40 W. Lat. 52. 0 N.

WHITCHURCH, or LITTLE STANMORE, a village near Edgeware, in Middlesex, eight miles N.W. of London. Here was a magnificent seat, called Canons, built in 1712, by James first duke of Chandos, who lived here in a kind of regal state, and died in 1744. It was demolished in 1747, and the materials were sold by auction. The church contains all that now remains of the magnificence of Canons: the body of it was built, and beautifully adorned, by the duke.

WHITE. *a.* (hpıꞇ, Saxon; *wit*, Dutch.) 1. Having such an appearance as arises from the mixture of all colours; snowy (*Newton*). 2. Having the colour of fear; pale (*Shakspeare*). 3. Having the colour appropriated to happiness and innocence (*Milton*). 4. Gray with age (*Shakspeare*). 5. Pure; unblemished (*Pope*).

WHITE. *s.* 1. Whiteness; any thing white; white colour. (See COLOUR and CHROMATICS.) 2. The mark at which an arrow is shot, which used to be painted white (*Southern*). 3. The albugineous part of an egg (*Boyle*). 4. The white part of the eye (*Ray*).

To WHITE. *v. a.* (from the adjective.) To make white; to dealbate (*Mark*).

WHITE-ANT, in entomology. See TERMES.

WHITE-BAIT, in ichthyology. See CYPRINUS.

WHITE-BEAM, in botany. See CRATÆGUS.

WHITE-LEAF, in botany. See CRATÆGUS.

White-thorn, in botany. See **Cratægus**.

White-nun, in ornithology. See **Mergus**.

White-throat, in ornithology. See **Motacilla**.

White vitriol. See **Vitriolum** and **Zincum**.

White lead. See **Plumbum** and **Lead**.

White blaze, a white mark upon a horse's face, descending from the forehead almost to the nose. See **Mark**.

White-foot, a white mark that happens in the feet of a great many horses, both before and behind, from the fetlock to the coffin. In the manage, the horses thus marked are either trammelled, cross-trammelled, or white of all four. See the articles **Mark**, **Trot**, and **Trammelled**.

Whites, in medicine, the vulgar name for a fluor albus. This disease is marked by the discharge of a thin white or yellow matter from the uterus and vagina, attended likewise with some degree of fetor, smarting in making water, pains in the back and loins, anorexia and atrophy. In some cases, the discharge is of so acrid a nature, as to produce effects on those who are connected with the woman, somewhat similar to venereal matter, giving rise to excoriations about the glans penis, and preputium, and occasioning a weeping from the urethra.

To distinguish leucorrhæa from gonorrhæa, it will be very necessary to attend to the symptoms. In the latter, the running is constant, but in a small quantity; there is much ardor urine, itching of the pudenda, swelling of the labia, increased inclination to venery, and very frequently an enlargement of the glands in the groin; whereas, in the former, the discharge is irregular, comes away often in large lumps, and in considerable quantities, and is neither preceded by nor accompanied with any inflammatory affection of the pudenda.

Immoderate coition, injury done to the parts by difficult and tedious labours, frequent miscarriages, immoderate flowings of the menses, profuse evacuations, poor diet, an abuse of tea and other causes giving rise to general debility, or to a laxity of the parts more immediately concerned, are those which usually produce the whites, vulgarly so called, from the discharge being commonly of that colour.

Fluor albus, in some cases, indicates that there is a disposition to disease in the uterus, or parts connected with it, especially where the quantity of the discharge is very copious, and its quality highly acrimonious. By some the disease has been considered as never arising from debility of the system, but as being always a primary affection of the uterus. Delicate women with lax fibres, who remove from a cold climate to a warm one, are, however, very apt to be attacked with it, without the parts having previously sustained any kind of injury.

The disease shews itself by an irregular discharge from the uterus and vagina, of a fluid, which in different women varies much in colour, being either of a white, green, yellow, or brown hue. In the beginning it is, however, most usually white and pellucid, and in the progress of the complaint acquires the various discolourations, and different degrees of acrimony, from whence proceeds a slight degree of smarting in making water. Besides the discharge, the patient is frequently afflicted with severe and constant pains in the back and loins, loss of strength, failure of appetite, dejection of spirits, paleness of the countenance, chilliness, and languor. Where the disease has been of long continuance, and very severe, a slow fever, attended with difficult respiration, palpitations, faintings, and anarsarcous swellings of the lower extremities, often ensues.

A perfect removal of the disorder will at all times be a difficult matter to procure; but it will be much more so in cases of long standing, and where the discharge is accompanied with a high degree of acrimony. In these cases, many disorders, such as prolapsus uteri, ulcerations of the organ, atrophy and dropsy, are apt to take place, which in the end prove fatal.

Where the disease terminates in death, the internal surface of the uterus appears, on dissection, to be pale, flabby, and relaxed; and where organic affections have arisen, much the same appearances are to be met with as have been noticed under the head of menorrhagia. See **Leucorrhæa**.

White swelling. See **Arthropuosis** and **Hydarthrus**.

WHITEHAVEN, a seaport in Cumberland, with a market on Tuesday. It is seated on a creek of the Irish sea, on the N. end of a great hill, washed by the tide on the W. side, where there is a large rock, or quarry of hard white stone, which gives name to the place, and which, with the help of a strong stone wall, secures the harbour. It is lately much improved in its buildings, and noted for its trade in coal and salt, there being near it a prodigious coal mine, which runs a considerable way under the sea. A good trade is also carried on to Ireland, Scotland, Chester, Bristol, and to the W. Indies. It is 10 miles S.W. of Cockermouth, and 305 N.W. of London. Lon. 3. 34 W. Lat. 54. 36 N.

WHITEHORN, a royal burgh of Scotland, in Wigtonshire, governed by a provost. It is a place of great antiquity, and said to have been the first bishop's see in Scotland. It is eight miles S. of Wigton.

Whitehorn, an island of Scotland, near the S.E. coast of the county of Wigton. Lon. 4. 20 W. Lat. 54. 46 N.

WHITEHURST (John), in biography, an ingenious English philosopher, was born at Congleton in the county of Chester, the 10th of April, 1713, being the son of a clock and watch-maker there. On his quitting school, where it seems the education he received was very defective, he was bred by his father to his own profession, in which he soon gave hopes of his future eminence.

At about the age of twenty-one, his eagerness after new ideas carried him to Dublin, having heard of an ingenious piece of mechanism in that city, being a clock with certain curious appendages, which he was very desirous of seeing, and no less so of conversing with the maker. On his arrival, however, he could neither procure a sight of the former, nor draw the least hint from the latter concerning it. Thus disappointed, he fell upon an expedient for accomplishing his design; and accordingly took up his residence in the house of the mechanic, paying the more liberally for his board, as he had hopes from thence of more readily obtaining the indulgence wished for. He was accommodated with a room directly over that in which the favourite piece was kept carefully locked up: and he had not long to wait for his gratification: for the artist, while one day employed in examining his machine, was suddenly called down stairs; which the young enquirer happening to overhear, softly slipped into the room, inspected the machine, and, presently satisfying himself as to the secret, escaped undiscovered to his own apartment. His end thus compassed, he shortly after bid the artist farewell, and returned to his father in England.

About two or three years after his return from Ireland, he left Congleton, and entered into business for himself at Derby, where he soon got into great employment, and distinguished himself very much by several ingenious pieces of mechanism, both in his own regular line of business, and in various other respects, as in the construction of curious thermometers, barometers, and other philosophical instruments, as well as in ingenious contrivances for water-works, and the erection of various larger machines; being consulted in almost all the undertakings in Derbyshire, and in the neighbouring counties, where the aid of superior skill, in mechanics, pneumatics, and hydraulics, was requisite.

In this manner his time was fully and usefully employed in the country, till, in 1775, when the act being passed for the better regulation of the gold coin, he was appointed stamper of the money-weights; an office conferred upon him altogether unexpectedly, and without solicitation. Upon this occasion he removed to London, where he spent the remainder of his days, in the constant habits of cultivating some useful parts of philosophy and mechanism.

In 1778, Mr. Whitehurst published his Inquiry into the Original State and Formation of the Earth; of which a second edition appeared in 1786, considerably enlarged and improved; and a third in 1792. This was the labour of many years; and the numerous investigations necessary to its completion were in themselves also of so untoward a nature as at times, though he was naturally of a strong constitution, not a little to prejudice his health. When he first entered upon this species of research, it was not altogether with a view to investigate the formation of the earth, but in part to obtain such a competent knowledge of subterraneous geography as might become subservient to the purposes of human life, by leading mankind to the discovery of many valuable substances which lie concealed in the lower regions of the earth.

May the 13th, 1779, he was elected and admitted a fellow of the Royal Society. Before he was admitted a member, three several papers of his had been inserted in the Philosophical Transactions, viz. Thermometrical Observations at Derby, in vol. 57; An Account of a Machine for raising Water, at Oulton, in Cheshire, in vol. 65; and Experiments on Ignited Substances, vol. 66; which three papers were printed afterwards in the collection of his works in 1792.

In 1783, he made a second visit to Ireland, with a view to examine the Giant's Causeway, and other northern parts of that island, which he found to be chiefly composed of volcanic matter: an account and representation of which are inserted in the latter editions of his Inquiry. During this excursion he erected an engine for raising water from a well, to the summit of a hill, in a bleaching-ground at Tullidoi, in the county of Tyrone, which is worked by a current of water.

In 1787, he published An Attempt toward obtaining Invariable Measures of Length, Capacity, and Weight, from the Mensuration of Time. His plan is to obtain a measure of the greatest length that conveniency will permit, from two pendulums whose vibrations are in the ratio of 2 to 1, and whose lengths coincide nearly with the English standard in whole numbers. The numbers which he has chosen show much ingenuity. On a supposition that the length of a second's pendulum, in the latitude of London, is $39\frac{1}{5}$ inches, the length of one vibrating 42 times in a minute must be 80 inches; and of another vibrating 84 times in a minute must be 20 inches; and their difference 60 inches, or five feet, is his standard measure. By the experiments, however, the difference between the lengths of the two pendulum rods was found to be only 59·892 inches, instead of 60, owing to the error in the assumed length of the second's pendulum, $39\frac{1}{5}$ inches being greater than the truth, which ought to be $39\frac{1}{8}$ very nearly. By this experiment, Mr. Whitehurst obtained a fact, as accurately as may be in a thing of this nature, viz. the difference between the lengths of two pendulum rods whose vibrations are known . a datum, from whence may be obtained, by calculation, the true lengths of pendulums, the spaces through which heavy bodies fall in a given time, and many other particulars relating to the doctrine of gravitation, the figure of the earth, &c.

Mr. Whitehurst had been at times subject to slight attacks of the gout, and he had for several years felt himself gradually declining. By an attack of that disease in his stomach, after a struggle of two or three months, it put an end to his laborious and useful life, on the 18th of February, 1788, in the 75th year of his age, at his house in Bolt-court, Fleet-street; being the house in which another eminent self-taught philosopher, Mr. James Ferguson, had immediately before him lived and died.

WHITELI′VERED. *a.* (from *white* and *liver.*) Envious; malicious; cowardly.

WHI′TELY. *a.* (from *white.*) Coming near to white (*Southern*).

WHI′TEMEAT. *s.* (*white* and *meat.*) Food made of milk (*Spenser*).

WHITE MOUNTAINS, the highest part of a ridge of mountains, in the state of New Hampshire, in N. America. They extend N.E. and S.W.; and their height above an adjacent meadow is 5500 feet; and the meadow is 3500 feet above the level of the sea. The snow and ice cover them nine or ten months in the year; and during that time they exhibit the bright appearance from which they are denominated the White Mountains. Although they are 70 miles inland, they are seen many leagues off at sea, and appear like an exceedingly bright cloud in the horizon. Their highest summit is in lat. 44° N.

To WHI′TEN. *v. a.* (from *white.*) To make white (*Temple*).

To WHI′TEN. *v. n.* To grow white (*Smith*).

WHI′TENER. *s.* (from *whiten.*) One who makes any thing white.

WHI′TENESS. *s.* (from *white.*) 1. The state of being white; freedom from colour (*Newton*). 2. Paleness (*Shakspeare*). 3. Purity; cleanness (*Dryden*).

WHITE SEA, a bay of the Frozen ocean, in the N. part of Russia, on the E. side of which stands the city of Archangel.

WHI′TEWASH. *s.* (*white* and *wash.*) 1. A wash to make the skin seem fair (*Addison*). 2. A kind of liquid plaster with which walls are whitened (*Harte*).

WHITE-WASHING, is the act of cleansing ceilings and walls, with a solution of lime in water, to which a little size is occasionally added.

The practice of white-washing apartments eminently contributes to the preservation of health; hence we would recommend the proprietors of cottages to enjoin their tenants regularly to perform this operation, at least once annually. In countries abounding with lime, the expence will be trifling; and, even though this article should be purchased, the whole cost will not exceed one shilling. It ought to be remarked, however, that hot or quick-lime is preferable to any other, and must be employed as soon as possible after it is slacked; for, by attending to this circumstance, its effects in destroying vermin, and removing infection, will be considerably increased.

WHITFIELD, or WHITEFIELD (George), one of the first and most celebrated preachers among the methodists, was born in 1714, at the Bell inn, in Gloucester, which was then kept by his mother. He received his education at the grammar-school of Gloucester, and afterwards became servitor of Pembroke college, Oxford. At the age of twenty-one, the fame of his piety recommended him so effectually to Dr. Benson, bishop of Gloucester, that he offered him ordination, which he accepted, and applied himself most indefatigably to the duties of his character, preaching daily in prisons, fields, and open streets, wherever he thought there would be a chance of making proselytes. Having made himself universally known in England, he embarked for America, where the tenets of methodism had begun to spread very fast under his friends, John and Charles Wesley. Here he gained many converts, and instituted the orphan-house at Georgia. After a long and successful course of itinerant preaching, his fortune improved as his fame increased, and he erected two extensive buildings for public worship; one in Tottenham-court-road, and the other in Moorfields, where, with the help of some assistants, he continued for several years, attended by overflowing congregations; he had also establishments of the same kind in various parts of the kingdom, besides being connected, as chaplain to the countess dowager of Huntingdon, with several chapels built under her patronage. By a lively, fertile, and penetrating genius, by the most unwearied zeal, and by a forcible and persuasive delivery, he never failed to produce a good effect upon his crowded and admiring audiences. America, however, which had constantly engaged much of his attention, was destined to close his eyes, and he died at Newbury, about 40 miles from Boston, in New England, in 1770. His sermons and other works are well known.

WHI′THER. *a.* (hƿẏꝺeꞃ, Saxon.) 1. To what place? interrogatively (*Dryden*). 2. To what place: absolutely (*Milton*). 3. To which place: relatively (*Clarendon*). 4. To what degree: obsolete (*Ben Jonson*).

WHITHERITE, in mineralogy, a native carbonat of barytes; colour yellowish-grey, passing into greyish-white and pale wax-yellow: it is found massy, disseminated, rarely crystallized, at Anglezach in the north of Lancashire, at Schlangenburg in Siberia, and near Neuburg in Upper Stiria.

WHITHERSOEVER. *ad.* (*whither* and *soever.*) To whatsoever place (*Taylor*).

WHITING, in ichthyology. See GADUS.

WHITING (Pout), in ichthyology. See GADUS.

WHI′TISH. *a.* (from *white.*) Somewhat white (*Boyle*).

WHI′TISHNESS. *s.* (from *whitish.*) The quality of being somewhat white (*Boyle*).

WHI′TLEATHER. *s.* (*white* and *leather.*) Leather dressed with alum, remarkable for toughness (*Chapman*).

WHITLOW. See SURGERY.

WHITLOW-WORM, in helminthology. See GORDIUS.

WHITSUN-FARTHINGS, otherwise called Smoke-farthings or Quadrantes Pentecostales, a composition for offerings which were anciently made in Whitsun-week by every man in England, who occupied a house with a chimney, to the cathedral church of the diocese in which he lived.

WHITSUNDAY, a solemn festival of the Christian church, observed on the fiftieth day after Easter, in memory of the descent of the Holy Ghost upon the apostles in the visible appearance of fiery cloven tongues, and of those miraculous powers which were then conferred upon them. It is called Whitsunday, or White-Sunday; because this being one of the stated times for baptism in the ancient church, those who were baptised put on white garments, as types of that spiritual purity they received in baptism. As the descent of the Holy Ghost upon the apostles happened upon the day which the Jews called Pentecost, this festival retained the name of Pentecost among the early Christians.

The origin of this feast is by Epiphanius carried as high as the time of the apostles. The passage, however, (Acts xx. 16.) to which he refers, in proof of his position, has been usually taken in another sense. But it was doubtless observed in the time of Origen; for he speaks of it in his books against Celsus, lib. 8. Tertullian also mentioned it before him in his book on Idolatry, cap. 14. And Irenæus, before either of them, that is, about A.D. 180, mentioned it in his book concerning Easter; as the author of the Questions, under the name of Justin Martyr, informs us; Qu. 115.

WHITSUNTIDE ISLAND, one of the New Hebrides, in the Pacific ocean. It is 12 miles long and five broad, and was discovered by captain Wallis, on Whitsunday, 1767. Lon. 168. 20 E. Lat. 15. 44 S.

WHI′TTLE. *s.* (hpýtel, Saxon.) 1. A white dress for a woman: not in use. 2. A knife (*Shakspeare*).

To Whi′ttle. *v. a.* (from the noun.) 1. To cut with a knife. 2. To edge; to sharpen: not used (*Hakewill*).

WHITTLEBURY FOREST, a forest in the S. part of Northamptonshire, nine miles in length, and, in some parts, above three in breadth. Here the wild cat is still found. In 1685, the first duke of Grafton was appointed hereditary ranger of this forest, in which the present duke has a fine seat, called Wakefield Lodge.

To WHIZ. *v. a.* (from the sound.) To make a loud humming noise (*Shakspeare*).

WHO. *pronoun.* genitive *whose*; other cases *whom.* (hpa, Saxon; *wie*, Dutch.) 1. A pronoun relative, applied to persons (*Abbot*). 2. Which of many (*Locke*). 3. *As who shall say*, elliptically for *as one who should say* (*Collier*). 4. It is used often interrogatively (*Psalms*).

WHO′EVER. *pronoun.* (*who* and *ever.*) Any one without limitation or exception (*Pope*).

WHOLE. *a.* (palƷ, Saxon; *heel*, Dutch.) 1. All; total; containing all (*Shakspeare*). 2. Complete; not defective (*Waller*). 3. Uninjured; unimpaired (*Samuel*). 4. Well of any hurt or sickness (*Joshua*).

Whole. *s.* 1. The totality; no part omitted; the complex of all the parts (*Broome*). 2. A system; a regular combination (*Pope*).

WHO′LESALE. *s.* (*whole* and *sale.*) 1. Sale in the lump, not in separate small parcels. 2. The whole mass (*Watts*).

Who′lesale. *a.* Buying or selling in the lump, or in large quantities (*Addison*).

WHO′LESOME. *a.* (*heelsam*, Dutch; from hæl, Saxon, *health.*) 1. Sound (*Atterbury*). 2. Contributing to health (*Addison*). 3. Preserving; salutary: obsolete (*Psalms*). 4. Useful; conducive to happiness or virtue (*Denham*). 5. Kindly; pleasing (*Shakspeare*).

WHO′LESOMELY. *ad.* Salubriously; salutiferously.

WHO′LESOMENESS. *s.* (from *wholesome.*) 1. Quality of conducing to health; salubrity (*Graunt*). 2. Salutariness; conduciveness to good.

WHO′LLY. *ad.* (from *whole.*) 1. Completely; perfectly (*Dryden*). 2. Totally; in all the parts or kinds (*Bacon*).

WHOM. The accusative of *who*, singular and plural.

WHO′MSOEVER. *pron.* (oblique case of *whosoever.*) Any without exception (*Locke*).

WHOO′BUB. *s.* Hubbub (*Shakspeare*).

WHOOP. *s.* See Hoop. 1. A shout of pursuit (*Addison*). 2. (*upupa*, Latin.) A bird.

To Whoop. *v. n.* (from the noun.) To shout with malignity (*Shakspeare*).

To Whoop. *v. a.* To insult with shouts (*Dryden*)

WHORE. *s.* (hoꞃ, Saxon; *hoere*, Dutch.) 1. A woman who converses unlawfully with men; a fornicatress; an adultress; a strumpet (*Ben Jonson*). 2. A prostitute; a woman who receives men for money (*Dryden*).

To Whore. *v. n.* (from the noun). To converse unlawfully with the other sex (*Dryden*).

To Whore. *v. a.* To corrupt with regard to chastity (*Congreve*).

WHO′REDOM. *s.* (from *whore.*) Fornication (*South*).

WHOREMAS′TER. Whoremo′nger. *s.* (*whore* and *master*, or *monger.*) One who keeps whores, or converses with a fornicatress (*Shakspeare*).

WHO′RESON. *s.* (*whore* and *son.*) A bastard (*Shakspeare*).

WHO′RISH. *a.* (from *whore.*) Unchaste; incontinent (*Shakspeare*).

WHORTLEBERRY BEARS. See Uva ursi.

Whortleberry (Red). See Vitis idæa.

WHOSE. 1. Genitive of *who.* (*Shakspeare*). 2. Genitive of *which.* (*Prior*).

WHO′SO. Whosoe′ver. *pronoun.* (*who* and *soever.*) Any, without restriction. *Whoso* is out of use (*Bacon. South*).

WHURT. *s.* A whortleberry; a bilberry (*Carew*).

WHY. *ad.* (hpı, ꝼoꞃhpı, Saxon.) 1. For what reason? interrogatively (*Swift*). 2. For which reason: relatively (*Boyle*). 3. For what reason: relatively (*Milton*). 4. It is sometimes used emphatically (*South*).

WHYNN DYKES, in mineralogy, dykes,

banks, or natural walls of whin-stone, a peculiar species of basalt, found in various parts of the world, but no where on so grand and stupendous a scale as on the Scotch and Irish coasts.

The nature and origin of this singularly arranged and most wonderful mineral production have for many years strongly attracted the attention and divided the opinion of geologists. The Swedes and Germans, with M. Bergman at their head, have contended that it is of an aqueous origin; and their arguments are highly plausible, and have met with extensive support in Great Britain. The French and the Italians, on the contrary, with various other English philosophers, have contended for its being an igneous formation; and hence whynn dykes are by the followers of this school uniformly denominated lava veins. But here the latter class of geologists appear to disagree: one division of them, with Dr. Hutton and professor Playfair in the foreground, believing them to consist of unerupted lava, or of matter fused by some enormous subterranean heat, and forced up the basaltic cavities and interstices in which it is usually found, by some unknown power; while another division of them, led forward by Dr. Hamilton, as plausibly conjecturing them to consist of erupted lava, thrown forth from volcanos in a state of violent activity, and forced down the same cavities, as it rolls forward by its specific gravity. And hence, while the aqueous system is denominated the Neptunian, the first division of the igneous system is denominated the Volcanic, and the second the Plutonic.

Dr. Richardson, who has lately written several valuable and important papers on this curious subject in the Philosophical Transactions, appears to have adopted a third opinion, essentially differing from both the preceding. He shows evidently that the whynn dykes of Ireland and Scotland cannot be of igneous origin, whilst he believes that instead of being posterior to the basaltic mountains or the other rocks they cut through, all of which he conceives to be of aqueous birth, he supposes them to have possessed an antecedent date, and to form the frame-work or skeleton of the globe. His last paper upon this subject is of too much importance, in the present uncertain state of mineralogy, to be past by, and we shall hence present our readers with the following extracts from it. It occurs in the 9th vol. of the Royal Irish Academy.

"The whynn dykes in the Hebrides are seen under very different circumstances from those on the northern coast of Ireland. There they are found on, and above, the surface, generally a few feet; and often serve as fences, whence they obtain their name. In this form they run northwards quite to the extremity of these islands, ascending and descending mountains, crossing seas; and where these are narrow, the dykes that run into the water at one side of a channel are seen rising out of it at the other side, steadily pursuing their formed rectilineal course.

"With us they are sometimes exhibited in a very different manner. Their first appearance is in the faces of our vast perpendicular precipices, where they are seen cutting vertically the several strata of which these are composed, and then burying themselves in the northern ocean.

"The observations made on these whynn dykes in the two countries, taken together, make our information on the subject complete. In the Hebrides we are surprised at the incredible length to which these mighty walls proceed, and we see them penetrating indifferently all substances they encounter:—with us we can measure a part, and a part only, of their stupendous height, as at the Milestone 100 feet, at Port Spagna 330 feet, at Fairhead probably more; and we can observe the effect, or rather the non-effect, produced at their contacts with the different materials they meet, as they are seen in the faces of our precipices.

"By Mr. Mills's account, (Phil. Trans. 1790,) the island of Lismore, entirely limestone, is crossed by whynn dykes, as is the limestone at Gartness; at Iona granite is the contiguous matter, at Juva chert, at Persabus a whynn dyke is crossed by a lead vein, and another at Glascow Beg; at the isle of Arran Mr. Jameson finds them cutting through porphyry and micaceous schistus.

"With us the whynn dykes at the westward of the Giant's Causeway cut through strata of table basalt, and red ochreous matter, placed alternately; at the Giant's Causeway, and Port Spagna, they cut through strata of finer basalt, disposed in prismatic pillars; while at Fairhead they encounter new materials, to wit, alternate strata of freestone and coal.

"In both countries these mighty walls are always of basalt; their general thickness is from twelve to fifteen feet, though in one or two instances they do not exceed two or three feet, and at Gartness the whynn dyke is 23 yards across; but it has not been ascertained, in any instance, to what depth they reach beneath the surface, even in the deepest mines.

"Though the material of which these walls are composed seems to be in general the same, yet from Mr. Mills's account there are important differences between the Scotch whynn dykes; and with us scarce any two of our dykes, that are accessible, exactly (as will appear) resemble each other.

"As the whynn dykes Mr. Mills observed are unquestionably basalt, he calls them all lava, and attempts to prove it by a sort of vague induction: page 75, he says, Islay whynn dykes resemble those at Ballycastle, which take their rise in a country confessedly abounding with volcanic matter.

"Now the specimens from the Islay dykes strongly resemble (as he says) the Derbyshire toadsone, formed, as he asserts (page 98), by subterraneous fire.

"Of Derbyshire I will not presume to say any thing, having never visited it; but the proof of its strata being lava rests upon the admission of Mr. Whitehurst's position, that these toadstone strata were formed by successive eruptions of a volcano at the centre of the earth, which pouring up repeated torrents of liquid lava, these spread when they approached the surface of the earth at different distances, and formed the toadstone strata.

"When Mr. Mills endeavours to establish his opinions by assertions relative to my country, I will venture to reply to him.

"The precipice from which the whynn dykes issue at Ballycastle, by his own account, consists of alternate strata of freestone and coal, not very like volcanic matters: and as to his positive and general assertion, that our basaltic country confessedly abounds with volcanic matters, I must reply in his own style, positively and generally, that it does not afford a single particle of volcanic matter; that I have examined this tract for a longer time, and probably with more attention, than any other person ever did, or I would not presume to hazard the assertion so confidently.

"When your lordship is so good as to perform the promise you made me, of spending some time with me at the Giant's Causeway, you will be able to judge for yourself as to the truth of these contradictory assertions.

"The advocates for igneous operations over the surface of our globe are so prejudiced, that it is sometimes sufficient to refute them merely to quote their own words. As Mr. Mills's paper is now before me, I will give your lordship an instance: He says, (page 98,) 'In short, from the very rude and irregular appearance of the summit of the hill (Loffit hill), from its rising so suddenly from the limestone strata, and from the whynn dyke that runs through it, I am strongly inclined to believe it of volcanic origin.' Now, as limestone and volcanic matters are not very congenial, and as we do not find that a whynn dyke has been met with in the neighbourhood of any volcano, I conceive, with great deference to Mr. Mills, that if he was determined to draw a conclusion from these data, it should have been a contrary one."

Dr. Richardson, however, does not rest upon this observation, but follows up the enquiry by a long and conclusive statement of facts, which we regret that we have not room to copy. He then observes as follows:—

"Though the basalt septs in mines in general, and every one of our own whynn dykes at Ballycastle, are attended by a depression of the strata on one side; yet those I have described at Bengore Head are accompanied by nothing similar, except the one at the Causeway; and proceeding further eastward, coasting this promontory, we meet with three depressions of our strata, where nothing like a whynn dyke is to be found.

"The first is singular and beautiful; it is near a mile east from the Causeway, and a quarter of a mile beyond the last dyke. The precipice here is uncommonly magnificent, its height more than 350 feet above the water; and the upper part of this, which is accurately perpendicular, and extends half a mile on either side, is 150 feet.

"This whole face is composed of three strata, two of them formed of superb basalt pillars 45 and 55 feet long, with an intermediate stratum, near 60 feet, of another variety of basalt; the lowermost of these strata, when produced westward, dips, and at its intersection with the sea forms the Giant's Causeway.

"This grand façade, together with the whole promontory, is as it were cut down and bisected by a vertical plane, on the west side of which the promontory and all its strata have sunk and subsided about 40 feet, without any other shake or disturbance, all the strata in the subsided part still remaining accurately parallel to the permanent strata, and proceeding westward in their former direction, only from points 40 feet lower.

"An account of the variety, arrangement, and alterations of these strata, so completely displayed in the superb face of this precipice, where nature seems to have intended to exhibit to the philosopher the order in which she has disposed her materials, without putting him to the trouble of penetrating into the bowels of the earth, would lead me far beyond the limits of a letter. How these strata, with their ascent, culminations, dip, and immersions, have hitherto escaped the observation of naturalists is quite beyond my comprehension.

"The two depressions further east are much inferior to this; I shall only observe that there is not the least appearance of crack or disruption, the strata on both sides of the depression are all consolidated into one mass.

"When searching for whynn dykes upon our northern coast, I was obliged to omit about four miles of it lying between Bengore Head and Carrickarede, as being too distant from Portrush and Ballycastle, where I was used to take boat, and totally void of shelter, even for the smallest craft.

"To the westward of Ballycastle I saw only one dyke. On the east side of Kenbaan Point, a rock emerges from the water, which I have no doubt is part of a dyke, from the appearance it made; and as I approached it, I perceived it was formed of horizontal prisms: here too a new feature occurred, common indeed in the dykes further eastward, but which I had not observed in any of those I had yet examined; the centre and sides of this one were constructed differently, the prisms in the centre being larger than those in the sides, and all very neat, the grain too, probably, as in other cases, also differed; but I was precluded from examining any of the circumstances which attended this curious little solitary rock, by the violent surf which then broke upon it.

"Hitherto the precipice cut through by the whynn dykes, and the rocks from among which they sometimes emerge, were all basalt, uniformly stratified; but the accumulation of these strata, after regularly dipping, immerges beneath the sea to the westward of Ballycastle, and a new system of materials arises at the end of the strand to the eastward, to wit, alternate strata of freestone and coal; these are cut through exactly in the same manner the basalt strata were, by vertical whynn dykes, which all run into the sea, across the beach at the foot of the precipice.

"These singular walls are not confined to the northern coast of our basalt country; its eastern side abounds with them still more. It was not in my power to examine any of those except such as lie in the bay of Belfast, but my ingenious friend Dr. M'Donald (a zealous mineralogist, whose pursuits in that line have of late been much impeded by great success in his profession,) informs me that they commence near Murlogh, where my tour on that side ended; that they are very numerous about Torr point, Garron point, and in general on all projecting points on that coast; and he conceives (I think judiciously) that points being found where the dykes are most numerous, arises from the protection they give the land in those places, preventing the sea from making the same inroads there it did on the adjacent parts.

"Dr. M'Donald and I examined together the dykes at White-house point, four miles from Belfast; several of them are crowded together, three or four run parallel in an E.S.E. direction at about 150 yards from each other, and are in one place crossed by another at acute angles; several of these dykes, I am told, are traced across the county of Down on the opposite side of Belfast lough.

"Though these dykes were so near, yet they differed materially from each other; in many the middle part and the sides were not of the same grain, nor constituted on the same principle; in some we found zeolite in thecentre, but not in the sides; in others the middle part was formed by cutting it across (no doubt into prisms), while the sides were a rude mass studded with coarse round stones, about the size of an eighteen-pound ball; these last Dr. M'Donald assured me he had often broken, and found them composed of concentric spheres, like the pellicles of an onion; some of the dykes were of solid massive prisms laid quite across, while one or two had a longitudinal division running through their middle, as in the second dyke at Fairhead.

"In all, the lines marking the construction of the dykes, whether accurate or faint, were across at right angles to their directions, but the perfection of the workmanship was very different; and when we attacked them with a light sledge, we found some to crumble, being in a state of decomposition, others resisted our efforts, while some broke into small quadrangular prisms, like the dykes at Port Spagna and the Giant's Causeway.

"There are two sects of naturalists, however, distinguished by the names of Volcanists and Plutonists, that have of late taken possession of all the basalt in the world, and have divided it between themselves, under the descriptions of erupted and unerupted lava; and they have so convinced Dr. Beddoes of the validity of their claim, that he says, 'I shall assume the origin of basaltes from subterranean fusion to be thoroughly established.'

"After such a round assumption it may be deemed uncivil to question the igneous origin of our basalt dykes; but natural history is not to be sacrificed out of respect to confident assertion: I will therefore try by the test of facts whether that description of basaltes (which your lordship wishes for information upon) ever was in fusion.

"Foreigners seem to know little of whynn dykes except in mines. Mr. St. Fond found at Chamareile in Vivarois what is obviously a whynn dyke, and it embarrassed him more than any fact he ever met with; it will be found entertaining to look into his Vol. ex de Vivarois, and into his Min. des Vol. to see the difficulties into which this *courant de lave compacte*, this *ruisseau de basalte en fusion* has thrown him, and the swingeing postulates he is obliged to make, in order to get over them.

"Dr. Hamilton on behalf of the Volcanists, and Dr. Hutton, the great advocate for the Plutonic system, are more ready at their expedients; the first of these forms our whynn dykes by pouring in erupted lava at the upper aperture of mighty chasms; while Dr. Hutton conceives these chasms were filled up by his own unerupted lava, forced up at the lower.

"In discussing the opinions of these gentlemen, I will make them the most liberal concessions; for instance, I will concede to both, that they have discovered the process by which nature has formed chasms of immeasurable length, immeasurable depth, and of inconsiderable, though uniform, breadth.

"I will concede to Dr. Hamilton that he has brought to the edge of the chasms his lava, 'this foreign substance, which issuing from the vast mass of basaltes that forms the northern extremity of Fairhead, has descended over the adjoining strata,' and that he has it ready 'to fill up each cleft and vacuity.' (Ham. Antrim, let. 5, part 1.)

"I will also admit in favour of Dr. Hutton, that he has his unerupted lava ready at the bottom of these chasms, that he has his machinery prepared for forcing it up, and that he has surmounted his great difficulty, and discovered a mode of supporting such a mass when raised; a point upon which, having failed himself, he would discourage others from forming conjectures. (Edinburgh Trans. vol. 1. page 285.)

"Notwithstanding these concessions, it will not be difficult to show that these gentlemen have not discovered the secret of nature in the construction of these singular walls; and that they were not formed by liquid lava filling up mighty chasms.

"1st. Many of our contiguous dykes differ materially from each other, yet their proximity is such, that, according to the theory of either Dr. Hamilton or Dr. Hutton, they must have been filled up from the same source, and with the same material.

"2dly. Many of these dykes, both in Ireland and Scotland, shew a material difference between their middle parts and their sides, both in grain and internal principle of construction; the change too is not gradual, but per saltum, as if the dissimilar parts were separated from each other by planes parallel to their sides: all this is perfectly incompatible with the high state of fluidity in which the lava must have been, to enable it to fill up vast chasms of such diminutive breadth.

"3dly. Our whynn dykes come in contact with a great variety of different substances, without producing such effect upon any one of them as might be expected from the contiguity of so glowing a mass; but however this argument may bear against the Volcanists, the Plutonists will say it does not apply to them, for the chemical operations of nature are carried on in Dr. Hutton's subterranean laboratory very differently from what we see on the surface of our globe: in the former Dr. Hutton says 'calcareous strata are consolidated by the operation of heat and simple fusion,' and again, 'having proved that these strata had been consolidated by simple fusion,' (page 253.) Dr. Hutton however confesses it is not easy to comprehend this: 'and to be convinced that this calcareous stone, which calcines so easily in our fires, should have been brought into fusion by subterraneous heat without suffering calcination, must require a chain of reasoning which every one is not able to comprehend.' (Page 271.)

"But it is not necessary on this occasion to enter into the mysteries of a laboratory, to which we have not access, nor to calculate the force of Dr. Hutton's great agent, compression; for our observations on the contacts of the matter of our whynn dykes with the substances they encounter, being made on the surface of the earth, in the open air, even admitting those dykes to be formed as Dr. Hutton supposes, his unerupted lava is now become erupted, and of course, to use his own words, 'those substances which calcine and vitrify in our fires, should suffer similar changes when delivered from a compression which renders them fixed.' (Edinburgh Trans. page 280.)

"All substances, when ignited, are in a high state of dilatation; this is followed, when they cool, by a contraction, *une retraite*, by which they occupy less space than they did when heated; of course, had our dykes been chasms filled up with glowing lava, when this material cooled and contracted, it could no longer fill up these chasms as before, but must crack and separate from their sides, leaving intervals and disruptions; but nothing like this is observed, the dyke and contiguous matter, whatever it be, are solidly united together, forming but one mass.

"These whynn dykes suggest other curious questions: Were they formed at the same time with the contiguous materials?

"Were they posterior to them, as Dr. Hamilton and Dr. Hutton suppose?

"Or, were they antecedent to the stratified masses, that every where come in contact with them?

"The inutility of such speculations deters me from entering into them. I must however confess, that the facts seem to give stronger negatives to the two first questions, than to the last. But who would hazard so bold an opinion, as that these mighty walls were the first part of our world that was formed? What an idea must it convey to us of this framework or skeleton of our globe!

"A new theory I conceive more likely to be a nuisance than an acquisition to natural history; and that the road to the advancement of the science would be better laid open by destroying some of those we have already."

WHY'NOT. *ad.* A cant word for violent or peremptory procedure (*Hudibras*).

WIBORGIA, in botany, a genus of the class diadelphia, order decandria. Calyx five-toothed, with the cavities rounded: legume turgid, grooved, winged. Three species, natives of the Cape.

WIBURG, or VIBORG, a government of Russia, formerly Russian Finland, and comprised in Kexholm and Carelia. It was ceded by the Swedes to the Russians, partly by the peace of Nystadt in 1721, and partly by the treaty of Abo in 1743. Beside pastures, the country produces rye, oats, and barley, but not sufficient for the inhabitants. In the governor's court, business is transacted in the Swedish, German, and Russian tongues. Lutheranism is the established religion; but Greek worship has been introduced by the Russians.

WIBURG, a fortified seaport of Russia, capital of a government of the same name, and a bishop's see, with a strong citadel. The houses are almost entirely built of stone. The chief exports are planks, tallow, pitch, and tar. The surrounding country is pleasant; and near it, at Imatra, is the famous cataract of the Woxa, which makes a noise more stunning than that of the Rhine at Lauffen. Wiburg stands on the N.E. point of the gulf of Finland, 110 miles N.N.W. of Petersburg. Lon. 29. 10 E. Lat. 60. 56 N.

WIBURG, a city of Denmark, in North Jutland, capital of a diocese of the same name, and the seat of the chief court of justice in the province. In 1726, a fire burnt the cathedral, a church, the townhouse, and the bishop's palace: but they have all been magnificently rebuilt. It is seated on a lake, in a peninsula, 95 miles N. of Sleswick. Lon. 9. 50 E. Lat. 56. 20 N.

WIC, *Wich*, comes from the Saxon pic, which, according to the different nature and condition of places, hath a threefold signification; implying either a village, or a bay made by the winding banks of a river, or a castle (*Gibson*).

WICK. *s.* (peoce, Saxon; *wiecke*, Dut.) The substance round which is applied the wax or tallow of a torch or candle (*Digby*).

Wick, a borough of Scotland, and the capital of Caithnessshire, with a harbour on an inlet of the German ocean, at the mouth of a river of the same name. Much kelp is made here, but the fisheries are the chief object of importance. It is 55 miles N.E. of Dornoch. Lon. 2. 51 W. Lat. 58. 21 N.

WI'CKED. *a.* 1. Given to vice; not good; flagitious; morally bad (*Milton*). 2. It is a word of ludicrous or slight blame (*Shaks.*). 3. Cursed; baneful; pernicious; bad in effect (*Shakspeare*).

WI'CKEDLY. *ad.* Criminally; corruptly; badly (*Clarendon*).

WI'CKEDNESS. *s.* (from *wicked.*) Corruption of manners; guilt; moral ill (*Milton*).

WI'CKER. *a.* (*vigre*, a twig, Danish.) Made of small sticks (*Spenser*).

Wicker tree, in botany. See Sorbus.

WICKET, a small door in the gate of a fortified place, &c. or a hole in a door through which to view what passes without.

WICKLIFF (John), the first divine in Europe who had resolution to attempt a reformation of religion, was born about the year 1324, in the parish of Wycliff, near Richmond, in Yorkshire. He was educated at Oxford, first in Queen's, and afterwards in Merton college, of which he was a probationer-fellow. Having acquired the reputation of a man of great learning and abilities, in 1361 he was chosen master of Baliol hall, and in 1365 constituted warden of Canterbury college, by the founder, archbishop Simon de Islip; but was, in 1367, ejected by the regulars, together with three secular fellows. He thought their proceedings arbitrary, and therefore appealed to the pope; but instead of obtaining redress, in 1370 the ejectment was confirmed. This disappointment probably contributed somewhat towards his enmity to the see of Rome, or rather to confirm that enmity; for he had long before written against the pope's exactions and corruptions of religion. However, his credit in the university continued; for having taken the degree of doctor in divinity, he read public lectures with great applause; in which he frequently exposed the impositions of the mendicant friars. About this time he published a defence of his sovereign Edward III. against the pope, who had insisted on the homage to which his predecessor king John had agreed. This defence was the cause of Wickliff's introduction at court, and of his being sent one of the ambassadors in 1374 to Bruges, where they met the pope's nuncios, in order to settle several ecclesiastical matters relative to the pope's authority. In the mean time Wickliff was presented by the king to the rectory of Lutterworth in Leicestershire, and in 1375 he obtained a prebend in the church of Westbury in Gloucestershire. Wickliff continued hitherto, without molestation, to oppose the papal authority; but in 1377 a bull was sent over to the archbishop of Canterbury, and to Courtney, bishop of London, ordering them to secure this arch-heretic, and lay him in irons; at the same time the pope wrote to the king, requesting him to favour the bishops in the prosecution: he also sent a bull to Oxford, commanding the university to give him up. Before these bulls reached England, Edward III. was dead, and Wickliff, protected by John duke of Lancaster, uncle to Richard II. favoured by the queen-mother, and supported by the citizens of London, eluded the persecution of pope Gregory IX. who died in 1378. In the following year this intrepid reformer presented to parliament a severe paper against the tyranny of Rome, wrote against the papal supremacy and infallibility, and published a book on the Truth of the Scriptures, intended to prepare the way for an English translation of them, in which he had made considerable progress. In 1381 he published Sixteen Conclusions; in the first of which he ventured to expose the grand article of transubstantiation. These conclusions being condemned by the chancellor of Oxford, Wickliff appealed to the king and parliament; but being deserted by his unsteady patron the duke of Lancaster, he was obliged to make a confession at Oxford; and by an order from the king was expelled the university. He now retired to his living of Lutterworth, where he finished his translation of the bible. This version, of which there are several manuscript copies in the libraries of the universities, British Museum, &c. is a very literal translation from the Latin vulgate. In 1383 he was suddenly struck with the palsy; a repetition of which put an end to his life in December 1384. He was buried in his own church, where his bones were suffered to rest in peace till the year 1428, when, by an order from the pope, they were taken up and burnt.—Besides a number of works that have been printed, he left a prodigious number of manuscripts; an accurate list of which may be seen in bishop Tanner's Bib. Brit. Hib. Some of them are in the Bodleian library, others in the British Museum, &c.

Wickliff was doubtless a very extraordinary man, considering the times in which he lived. His natural sagacity discovered the absurdities and impositions of the church of Rome, and he had the honesty and resolution to promulgate his opinions, which a little more support would probably have enabled him to establish: they were evidently the foundation of the subsequent reformation.

WICKLOW, a county of Ireland, in the province of Leinster, 33 miles long and 20 broad; bounded on the N. by Dublin, E. by the Irish sea, S. by Wexford, W. by Catherlough and Kildare, and N.W. by Kildare. It is divided into 58 parishes, has about 58,000 inhabitants, and sends two members to parliament. It is very mountainous and woody, interspersed with rocks and bogs; but the vallies are fertile and well cultivated, and watered by numerous small rivers.

Wicklow, a borough of Ireland, capital of the county of the same name. It is seated on the Irish sea, with a narrow harbour, at the mouth of the river Leitrim, 26 miles S.S.E. of Dublin. Lon. 6. 12 W. Lat. 52. 58 N.

WICKWAR, a town in Gloucestershire, governed by a mayor, with a market on Monday, 17 miles N.E. of Bristol, and 111 W. of London.

WIDDIN, a fortified town of European Turkey, in Bulgaria, and an archbishop's see. It has often been taken and retaken by the Austrians and Turks. It is seated on the Danube, 100 miles N. by W. of Soffa, and 140 E.S.E. of Belgrade. Lon. 24. 27 E. Lat. 44. 12 N.

WIDE. *a.* (ƿıꝺe, Saxon; *wijd*, Dutch.) 1. Broad; extended far each way (*Pope*). 2. Broad to a certain degree: as, *three inches wide*. 3. Deviating; remote (*Hammond*).

Wide. *ad.* 1. At a distance (*Temple*). 2. With great extent (*Milton*).

WI'DELY. *ad.* (from *wide.*) 1. With great extent each way (*Bentley*). 2. Remotely; far (*Locke*).

To WI'DEN. *v. a.* (from *wide.*) To make wide; to extend (*Shakspeare*).

To Wi'den. *v. n.* To grow wide; to extend itself (*Locke*).

WI'DENESS. *s.* (from *wide.*) 1. Breadth; large extent each way (*Dryden*). 2. Comparative breadth (*Bentley*).

WIDGEON, in ornithology. See Anas.

WI'DOW. *s.* (ƿıꝺƿa, Saxon; *weddw*, Welsh.) A woman whose husband is dead (*Sandys*).

To Wi'dow. *v. a.* (from the noun.) 1. To deprive of a husband (*Dryden*). 2. To endow with a widow-right (*Shakspeare*). 3. To strip of any thing good (*Philips*).

WI'DOWER. *s.* (from *widow.*) One who has lost his wife (*Sidney*).

WI'DOWHOOD. *s.* (from *widow.*) 1. The state of a widow (*Wotton*). 2. Estate settled on a widow (*Shakspeare*).

WI'DOWHUNTER. *s.* (*widow* and *hunter.*) One who courts widows for a jointure (*Add.*).

WI'DOWMAKER. *s.* (*widow* and *maker.*) One who deprives women of their husbands (*Shakspeare*).

Widow-wail. See Mezereum.

WIDTH. *s.* (from *wide.*) Breadth; wideness (*Dryden*).

WIED, a county of Westphalia, at the conflux of the rivers Wied and Rhine. It is composed of two parts, the Upper county, or Wied-Runkel, and the Lower county, or Wied-Neuwied, each governed by its own count, and the former in 1791 was raised to the rank of a prince of the empire. The capitals are Dierdorf and Neuwied.

Wied, a town of Westphalia, in the lower county of Wiel, with an ancient decayed castle on a mountain, nine miles N.N.W. of Coblentz.

To WIELD. *v. a.* (ƿealꝺan, Saxon, to manage in the hand.) 1. To use with full command, as a thing not too heavy for the holder (*Milton*). 2. To handle: in an ironical sense (*Shakspeare*).

WI'ELDY. *a.* (from *wield.*) Manageable.

WI'ERY. *a.* (from *wire.*) 1. Made of wire: it were better written *wiry* (*Donne*). 2. Drawn into wire (*Peacham*). 3. (from ƿeꞃ, a pool.) Wet; wearish; moist: obsolete (*Shakspeare*).

WIESENSTEIG, a town of Suabia, capital of a lordship of the same name. It is 16 miles N.W. of Ulm, and 25 S.E. of Stutgard. Lon. 10. 2 E. Lat. 48. 35 N.

WIFE. *s.* plural *wives*. (ƿı , Saxon; *wiff*, Dutch.) 1. A woman that has a husband (*Milton*). 2. It is used for a woman of low employment (*Bacon*).

WIG. *s.* *Wig*, being a termination in the name of men, signifies war, or else a hero; from ƿıᵹa, a word of that signification (*Gib.*).

Wig. *s.* (contracted from *periwig.*) 1. False hair worn on the head (*Swift*). 2. A sort of cake (*Ainsworth*).

WIGAN, a borough in Lancashire, with a market on Monday and Friday. It is governed by a mayor, and sends two members to parliament. Here the strongest checks are made, and other articles of linen and cotton manufacture. That elegant species of coal, called Cannel, is found in plenty and great perfection in the neighbourhood. The river Douglas is made navigable hence to the Ribble; and it is joined by a canal from Liverpool. Wigan is 30 miles S. of Lancaster, and 196 N.N.W. of London. Lon. 2. 50 W. Lat. 53. 34 N.

WIGHT. *s.* (ƿıhτ, Saxon.) A person; a being (*Davies. Addison*).

Wight. *a.* Swift; nimble: not used (*Spenser*).

Wight, an island on the coast of Hampshire, from which it is separated by a narrow channel. It is 21 miles long and 13 broad, and divided nearly into equal parts by the river Mede or Cowes, which rising in the southern angle, enters at the northern, into the channel, opposite the mouth of Southampton bay. The S. coast is edged with very steep cliffs of chalk and freestone, hollowed into caverns in various parts. The W. side is fenced with ridges of rocks, of which the most remarkable are those called, from their sharp extremities, the Needles. Between the island and the mainland are various sandbanks, especially off the eastern part, where is the safe rode of St. Helen's. Across the island, from E. to W. runs a ridge of fine downs, with a chalky or marly soil, which feed a great number of fine fleeced sheep. Rabbits are also very plentiful here. To the N. of this ridge the land is chiefly pasture: to the S. of it is a rich arable country, producing great crops of corn. The variety of prospects which this island affords, its mild air, and the neat manner in which the fields are laid out, render it a very delightful spot. It is devoted almost solely to husbandry, and is one of the principal resources of the London market for barley. Among its products are a pure white pipe-clay, and a fine white chrystalline sand; of the latter great quantities are exported for the use of the glass-works in various parts. Its principal town is the borough of Newport: it likewise contains the two small boroughs of Newton and Yarmouth.

WI'GHTLY. *ad.* Swiftly; nimbly (*Spen.*).

WIGHTON, a town in the E. riding of Yorkshire, with a market on Wednesday, seated at the source of the Skelsler, 16 miles S.E. of York, and 192 N. by W. of London. Lon. 0. 40 W. Lat. 53. 52 N.

WIGTON, a town in Cumberland, with a market on Tuesday, seated among the moors, 12 miles S.W. of Carlisle, and 304 N.N.W. of London. Lon. 3. 4 W. Lat. 54. 50 N.

Wigton, a borough and seaport, the county-town of Wigtonshire. On the S. side are the vestiges of an ancient castle, and to the N.E. is a great morass, called the Moss of Cree. It is situate on a hill, which overlooks the bay of Wigton, 95 miles S.W. of Edinburg. Lon. 4. 43 W. Lat. 55. 0 N.

WIGTONSHIRE, a county of Scotland, sometimes called Upper, or West Galloway; bounded on the N. by Ayrshire, on the E. by Kircudbrightshire, and on the S. and W. by the Irish sea. Its greatest extent, in any direction, does not exceed 30 miles. The N. part, called the Moors, is naked and mountainous. Great numbers of sheep and black-cattle are raised here; and they have a small breed of horses peculiar to this county: they are called galloways, and are very strong and gentle.

WILD. *a.* (pilð, Saxon; *wild*, Dutch.) 1. Not tame; not domestic (*Milton*). 2. Propagated by nature; not cultivated (*Mortimer*). 3. Desert; uninhabited (*Milton*). 4. Savage; uncivilized (*Waller*). 5. Turbulent; tempestuous; irregular (*Addison*). 6. Licentious; ungoverned (*Prior*). 7. Inconstant; mutable; fickle (*Pope*). 8. Inordinate; loose (*Dry.*). 9. Uncouth; strange (*Shakspeare*). 10. Done or made without any consistent order or plan (*Woodward*). 11. Merely imaginary (*Swift*).

Wild. *s.* (from the noun.) A desert; a tract uncultivated and uninhabited (*Pope*).

Wild basil. See Acinus.

Wild boar. (See Sus.) This animal was formerly a native of Britain, and held in such high estimation, that those convicted of killing or maiming him in the time of William the Conquerer were punished with the loss of their eyes. Charles I. procured wild boars from the continent, and had them turned down in the New Forest to promote the breed; but they were entirely destroyed in the civil wars that ensued. Hunting the wild boar is considered a magnanimous sport with the grandees of those countries in which they abound; but it is not to be compared with the exhilarating and enlivening scenes displayed in the different kinds of chase in our own country. Wild boars are sought after, and tried for, in the largest and thickest woods and coverts (having angular and cross rides cut through them for the purpose of the chase) in the same manner in which stags are roused, or foxes unkennelled, in this country. The dogs used for the sport are slow and heavy, much more like a cross between a mastiff and a wire-haired lurcher than any species of the hound kind. When the boar is once roused, more by the incessant noise and clamour of the multitude than by any peculiar property of the dogs, he goes moderately off, not much alarmed at, or seemingly afraid of, the exultation of his pursuers. During the chase he frequently turns round to face the dogs, and offers to attack them; again proceeds; again turns; and the animals for a while keep each other at bay: till at length the boar becomes completely tired, and refuses to go any farther. The conflict then begins in earnest: his defence being powerful and obstinate, before the dogs, particularly the younger ones, can be induced to attack him behind, in which attempt some lives are usually lost; but during the struggle the hunters get up, and put a period to his existence with their spears.

Wild carrot. See Daucus sylvestris.

Wild cucumber. See Cucumis agrestis.

Wild navew. See Napus.

Wild olive. See Eleagnus.

WILDEHAUSEN, a town of Westphalia, capital of a small bailiwic, united to the duchy of Bremen. It is seated on the Hunde, 18 miles S.W. of Bremen. Lon. 8. 27 E. Lat. 52. 55 N.

To WI'LDER. *v. a.* (from *wild.*) To lose or puzzle in any unknown or pathless tract (*Dryden*).

WI'LDERNESS. *s.* (from *wild.*) 1. A desert; a tract of solitude and savageness (*Spen.*). 2. The state of being wild or disorderly: not in use (*Milton*).

WILDGOO'SECHASE. *s.* A pursuit of something as unlikely to be caught as the wild goose (*L'Estrange*).

WI'LDING. *s.* (*wildelinghe*, Dutch.) A wild sour apple (*Philips*).

WI'LDLY. *ad.* (from *wild.*) 1. Without cultivation (*More*). 2. Without tameness; with ferity. 3. With disorder; with perturbation or distraction (*Shakspeare*). 4. Without attention; without judgment; heedlessly (*Shakspeare*). 5. Capriciously; irrationally (*Wilkins*). 6. Irregularly (*Dryden*).

WI'LDNESS. *s.* (from *wild.*) 1. Rudeness; disorder like that of uncultivated ground (*Bacon*). 2. Inordinate vivacity; irregularity of manners (*Shakspeare*). 3. Savageness; brutality (*Sidney*). 4. Ferity; the state of an animal untamed: contrary to *tameness*. 5. Uncultivated state (*Dryden*). 6. Deviation from a settled course; irregularity (*Watts*). 7. Alienation of mind (*Shakspeare*).

WI'LDSERVICE. *s.* (*cratægus*, Lat.) A plant.

WILE. *s.* (ƿile, Saxon.) A deceit; a fraud; a trick; a stratagem (*Roscommon*).

WI'LFUL. *a.* (*will* and *full*.) 1. Stubborn; contumacious; perverse; inflexible (*Proverbs*). 2. Done or suffered by design (*Dryden*).

WI'LFULLY. *ad.* 1. Obstinately; stubbornly (*Tillotson*). 2. By design; on purpose (*Ham.*).

WI'LFULNESS. *s.* Obstinacy; stubbornness; perverseness (*Hooker*).

WI'LILY. *ad.* (from *wily*.) By stratagem; fraudulently (*Joshua*).

WI'LINESS. *s.* (from *wily*.) Cunning; guile (*Howel*).

WILKESBOROUGH, a town of Pennsylvania, capital of the county of Luzerne. It is situate on the N.E. branch of the Susquehannah, 118 miles N.W. of Philadelphia. Lon. 75. 59 W. Lat. 41. 13 N.

WILKINS (Dr. John), in biography, a very ingenious and learned English bishop and mathematician, was the son of a goldsmith at Oxford, and born in 1614. After being educated in Greek and Latin, in which he made a very quick progress, he was entered a student of New inn in that university, when he was but thirteen years of age; but after a short stay there, he was removed to Magdalen hall, where he took his degrees. Having entered into holy orders, he first became chaplain to William, lord Say, and afterwards to Charles, count palatine of the Rhine, with whom he continued for some time. Adhering to the parliament during the civil wars, they made him warden of Wadham college about the year 1648. In 1656 he married the sister of Oliver Cromwell, then lord protector of England, who granted him a dispensation to hold his wardenship, notwithstanding his marriage. In 1659, he was by Richard Cromwell made master of Trinity college in Cambridge; but ejected the year following, upon the restoration. He was then chosen preacher to the society of Gray's inn, and rector of St. Lawrence Jewry, London, upon the promotion of Dr. Seth Ward to the bishopric of Exeter. About this time he became a member of the Royal Society, was chosen of their council, and proved one of their most eminent members. He was afterwards made dean of Rippon, and in 1668 bishop of Chester; but died of the stone in 1672, at fifty-eight years of age.

Burnet writes, that "he was a man of as great a mind, as true a judgment, as eminent virtues, and of as good a soul, as any he ever knew; that though he married Cromwell's sister, yet he made no other use of that alliance, but to do good offices, and to cover the university of Oxford from the sourness of Owen and Goodwin. At Cambridge he joined with those who studied to propagate better thoughts, to take men off from being in parties, or from narrow notions, from superstitious conceits, and fierceness about opinions. He was also a great observer and promoter of experimental philosophy, which was then a new thing, and much looked after. He was naturally ambitious, but was the wisest clergyman I ever knew. He was a lover of mankind, and had a delight in doing good."

Of his publications, which are all of them very ingenious and learned, and many of them particularly curious and entertaining, the first was in 1638, when he was only twenty-four years of age, viz. the Discovery of a New World; or, a Discourse to prove, that it is probable there may be another Habitable World in the Moon; with a Discourse concerning the Possibility of a Passage thither. In 1640, a Discourse concerning a New Planet, tending to prove that it is probable our Earth is one of the Planets. In 1641, Mercury; or, the secret and swift Messenger; shewing how a man may with privacy and speed communicate his thoughts to a friend at any distance; 8vo. In 1648, Mathematical Magic; or, the Wonders that may be performed by Mathematical Geometry; 8vo. All these pieces were published entire in one volume, 8vo. in 1708, under the title of, the Mathematical and Philosophical Works of the Right Rev. John Wilkins, &c. To this collection is also subjoined an abstract of a larger work, printed in 1668, folio, entitled, an Essay towards a real Character and a philosophical Language.

WILKOMIER, a town of Lithuania, in the palatinate of Wilna, seated on the Sweita, 45 miles N.W. of Wilna. Lon. 24. 54 E. Lat. 55. 19 N.

WILL. *s.* (ƿilla, Saxon; *wille*, Dutch.) 1. That power by which we desire and purpose; velleity (*Hooker*). 2. Choice; arbitrary determination (*Locke*). 3. Discretion; choice (*Pope*). 4. Command; direction (*Eccles.*). 5. Disposition; inclination; desire (*Shaks.*). 6. Power; government (*Locke*). 7. Divine determination (*Shakspeare*). 8. Testament; disposition of a dying man's effects (*Stephens*). 9. *Good*-WILL. Favour; kindness (*Shak.*). 10. *Good*-WILL. Right intention (*Philemon*). 11. *Ill*-WILL. Malice; malignity.

WILL AND TESTAMENT, in law. Every person capable of binding himself by contract is capable of making a will.

Also a male infant of the age of 14 years and upwards, and female of 12 years and upwards, are capable of making a will respecting personal estates only.

But a married woman cannot make a will unless a power is reserved in a marriage settlement; but wherever personal property, however, is given to a married woman for her sole and separate use, she may dispose of it by will.

If a feme sole makes her will, and afterwards marries, such marriage is a legal revocation of the will.

Wills are of two kinds, written and verbal; the former are most usual and secure.

It is not absolutely necessary that a will should be witnessed; and a testament of chattles, written in the testator's own hand, though it should have neither the testator's name nor seal to it, nor witnesses present at his publication, will be good, provided sufficient proof can be had that it is his hand-writing. Gilb. 260.

By stat. 29 Car. II. c. 3, all devises of lands, and tenements, shall not only be in writing, but shall also be signed by the party so devising the same, or by some other person in his presence, and by his express direction, and shall be witnessed and subscribed in the presence of the person devising, by three or four credible witnesses, or else the devise would be entirely void, and the land will descend to the heir at law.

A will, even if made beyond sea, bequeathing land in England, must be attested by three witnesses. 2 Pere Wms. 293.

A will, however, devising copyhold land, does not require to be witnessed: it is sufficient to declare the uses of a surrender of such copyhold land made to the use of the will. The party to whom the land is given becomes entitled to it by means of the surrender, and not by the will. 2 Atk. 37.

A codicil is a supplement to a will, or an addition made by the person making the same, annexed to, and to be taken as part of, the will itself, being for its explanation or alteration, to add something to, or take something from, the former disposition, and which may also be written or verbal, under the same restrictions as regard wills.

If two wills are found, and it does not appear which was the former or latter, both will be void; but if two codicils are found, and it cannot be ascertained which was the first, but the same thing is devised to two persons, both ought to divide; but where either wills or codicils have dates, the latter is considered as valid, and revokes the former. See ADMINISTRATOR, EXECUTOR, and LEGACY.

WILL WITH A WISP, or *Jack with a lanthorn*. See IGNIS FATUUS.

To WILL. *v. a.* (*wilgan*, Gothic; pillan, Saxon; *willen*, Dutch.) 1. To desire that any thing should be, or be done; or not be, or not be done (*Hooker*). 2. To be inclined or resolved to have (*Shakspeare*). 3. To command; to direct (*Dryden*). 4. It is one of the signs of the future tense.

WILLI and *Vili*, among the English Saxons, as *viele* at this day among the Germans, signified *many*. So *Willielmus* is the defender of many; *Wilfred*, peace to many (*Gibson*).

WILLIAM I. duke of Normandy, king of England, and one of the greatest generals of the eleventh century, was born at Falaise, and was the natural son of Robert, duke of Normandy, by Arlette, a furrier's daughter. After the death of Robert, which happened in 1035, William, who was his only son, succeeded him. His relations, however, disputed the succession, but being favoured by Henry I. king of France, he triumphed over them, defeated count d'Arques, took Maine, and carried the war into Anjou. Some time after he paid a visit to Edward the Confessor, who treated him with great respect, and took a tour with him through England. Some time after Edward the Confessor dying without issue, in 1065, appointed him his heir. On which William sent to demand the crown, and soon after landed at Pevensey, in Sussex, with a powerful army, and thence proceeding to Hastings, built a strong fort. Harold had placed himself on the throne, and now marched to oppose him, on which a bloody battle ensued, the 14th of October, 1066, in which William obtained a complete victory, though he had three horses killed under him, and lost a great number of his troops. On the side of the English, Harold was slain, with many of the nobility, and about sixty thousand soldiers. The Normans had besides the advantage of long bows, of the use of which the English were then ignorant. But, in spite of these, the English with their battle-axes kept so close together, that they remained invincible, till the Normans pretending to fly, brought them into disorder. Notwithstanding this victory, William could have little hopes of gaining the throne by right of conquest; he, therefore, gave out that he came to revenge the death of prince Alfred, brother to king Edward, to restore Robert archbishop of Canterbury to his see, and to obtain the crown as his right, on account of its being bequeathed to him by Edward the Confessor. He cannot, therefore, be properly said to obtain the crown by conquest, since these motives engaged many of the English in his favour. William was tall, broad set, and had great strength. His passions were violent, but he had much wisdom, and an equal share of dissimulation. He marched directly to London, but on the way was met by a large body of Kentish men, each with a bough, or branch of a tree in his hand. This army was headed by Stigand the archbishop, who made a speech to the conquerer, in which he boldly demanded the preservation of their liberties, and let him know that they were resolved rather to die than to part with their laws and live in bondage. William thought proper to grant their demands; he agreed to govern them by the laws of Edward the Confessor, and to suffer them to retain their ancient customs. Upon his coronation at Westminster, he was sworn to govern by the laws of the realm; and though he afterwards introduced some new forms, he preserved trials by juries and the borough law. He instituted the courts of Chancery and Exchequer; but at the same time disarmed his English subjects, and forbade their having any light in their houses after eight o'clock at night, when a bell was rung called curfew or coverfire, at the sound of which all were obliged to put out their fires and candles. He conquered several powers who invaded England, obliged the Scots to preserve the peace they had broken, compelled the Welsh to pay him tribute, refused to pay homage to the pope, built the tower of London, and caused all public acts to be made in the Norman tongue. He oppressed the people by taxes, and caused all

England to be surveyed and rated, and had the men numbered, in a work called Domesday-book, which is still extant. He resolved to chastise the French, who invaded Normandy, and after that to reduce his son Robert; but Robert no sooner found that he was engaged with his father, than he dutifully submitted to him, notwithstanding his being victorious. Some time after William declared war against Philip I. king of France, laid waste the country, burnt Mantes, and ravaged it with fire and sword to the gates of Paris; but approaching too near the flames of Mantes, the heat of the fire, together with the warmth of the season, threw him into a fever, which being increased by a fall from his horse in his return to Roan, he died in a village near that city, the 9th of September, 1087, in the 64th year of his age, after a reign of fifty-four years in Normandy, and twenty-one in England. He was interred at Caen, in Normandy.

William II. surnamed Rufus, or Red, from the colour of his hair, was the second surviving son of William the Conqueror, and succeeded his father the 27th of September, 1087. He was then thirty years of age, and at the same time Robert, his elder brother, succeeded by his father's will to the duchy of Normandy; but he resolved to assert his right of primogeniture to the crown of England, and several of the Norman nobility espoused his cause. William, however, defeated a body of his troops in Kent, and soon after prevailed on him to conclude a peace. The two brothers then made war on Henry, their youngest brother, whom they besieged in Mount St. Michael, where the king riding one morning unattended, fell in with a party of Henry's soldiers, and endeavoured to force his way through them, but was dismounted, and a soldier was going to dispatch him, when he saved his life by crying out, "Hold, fellow, I am the king of England." Upon this the man dropping his sword, raised the monarch from the ground, and received from him the honour of knighthood, and other favours. The brothers being now soon reconciled, William turned his arms against Scotland, and defeated the army of king Malcolm, who with his son were killed just before in an ambush laid by Mowbray, governor of Northumberland. But soon after, Mowbray finding that the king neglected to reward his services, joined with other noblemen to set the crown on the head of Stephen, grandson to William the Conquerer: upon which the king marched into Yorkshire, reduced Bamborough, took Mowbray prisoner, and put an end to the rebellion. But at length William hunting in the New Forest, was killed by an arrow shot by Walter Tyrrel, his particular favourite, who aiming at a deer, shot the king in the breast, on which he immediately expired, on the 2d of August, 1100, aged forty-four, after a reign of thirteen years. It is said so little respect was paid to his body, that it was conveyed in a coal-cart to Winchester.

William III. of Nassau, prince of Orange, stadtholder of the United provinces, king of England, &c. was the son of William of Nassau, prince of Orange, by Henrietta-Maria, the daughter of Charles I. king of England, and was born at the Hague, the 4th of November, 1650. He was about twenty-two years of age when, in 1672, he was elected stadtholder, and declared general of the Dutch troops, in order to put a stop to the rapidity of the conquests made by Lewis XIV. In 1673, he took the strong town of Naerden, and obliged the French to quit Utrecht, and several considerable places where they had garrisons. Soon after he engaged the French at Senef, where he gained great honour by his courage and conduct, and obtained a victory after a most bloody engagement. On the 17th of October, 1677, he embarked for England, and the 4th of November was married to the princess Mary, the eldest daughter of the duke of York, and the 29th of the same month departed from London with his princess, and landed at Terhyde. In August, 1678, he attacked and defeated the duke of Luxemburg in his quarters, near the abbey of St. Dennis. In the heat of the action he advanced so far, that he was in great danger of being killed. On the 29th of June, 1684, a treaty was signed at the Hague, which put an end to the war. James, duke of York, having ascended to the throne of England, after the death of his brother, Charles II. endeavouring to restore the popish religion, and to destroy the civil and religious liberties of the people, they naturally cast their eyes on the prince of Orange, and applied to him for deliverance, on which he landed at Torbay, the 5th of November, 1688, and was joyfully received by almost the whole nation. James now made his escape to France, and after his departure, the lords and commons agreed, after much dispute, that he had abdicated the throne, upon which the prince of Orange and the princess Mary were proclaimed king and queen the 13th of February, 1689, and crowned the 11th of April following. An attempt was then made by the opposite party to secure Scotland for James II. but on the 26th of May, 1689, the two armies meeting at Killicranky, in the shire of Perth, lieutenant-general Mackay, who commanded for king William, obtained a complete victory, after which the whole island of Great Britain submitted to him. In the mean time Tyrconnel had disarmed great part of the protestants of Ireland, and formed an army of papists, amounting to thirty thousand foot and eight thousand horse, while the protestants in the north took up arms, and seizing on Kilmore, Coleraine, Inniskilling, and Londonderry, declared for king William and queen Mary. At this time, James landing at Kinsdale, the 12th of March, 1688-9, made his public entry into Dublin; he soon after put himself at the head of twenty thousand men, and was twice reinforced by the French, who each time joined him with 5000 men. He took Coleraine and Kilmore, and laid siege to Londonderry; but soon after returned to meet his parliament in

Dublin, where he passed an act to attaint two or three thousand Protestant lords, ladies, clergymen, and gentlemen, of high treason. In the mean time the siege of Londonderry was vigorously carried on. The garrison of Inniskilling, at the same time, did wonders; particularly the day before the siege of Derry was raised, they advanced near twenty miles to meet about 6000 Irish, and defeated them, killing near 3000, though they themselves were not above 2000, and had not above 20 killed and 50 wounded. In August the duke of Schomberg arrived in Ireland with 10,000 men, took Carrickfergus in four days, and performed other acts of bravery and conduct. In June, 1690, king William landed in Ireland with a gallant army, and on the 1st of July fought the memorable battle of the Boyne, in which he gained a complete victory over the French and Irish, and obliged king James to retire to Dublin, and make all the haste he could back to France. King William also proceeded to Dublin, and thence to England. The next year the English, under the brave general Ginkle, made themselves masters of Ballimore, with incredible bravery passed the Shannon amidst the fire of the enemy, and took Athlone, and the 12th of July fought the glorious battle of Aghrim, wherein 4000 Irish, and their general St. Ruth, were slain, and all their tents, arms, &c. taken. After this entire defeat, Galway surrendered, and Limerick capitulated: and thus an end was put to the war in Ireland. About this time king William formed a grand alliance against Louis XIV. and commanded the allied armies in several battles in Flanders; till at length the French acknowledged him king of England, by the treaty of Ryswick, concluded in 1697. Being thrown from his horse, his collar-bone was dislocated, and he died the 8th of March 1702, in the 14th year of his reign, and the 52d of his age, and was interred next to his queen, who had died before him, in Henry VII.'s chapel. He left no issue.

William (Fort). See Calcutta.

William (Fort), a fort of Scotland, in the county of Inverness, at the extremity of Loch Linne, where that arm of the sea bends to the W. and forms Loch Eil. It is of a triangular figure, and 64 miles S.W. of Inverness.

William Henry, a town of Lower Canada, situate at the conflux of the Sorel with the St. Lawrence. It has a protestant and a Roman catholic church. The principal channel of intercourse with this country and the United States is through this town. It is 40 miles N.E. of Montreal, and 120 S.W. of Quebec. Lon. 73. 22 W. Lat. 45. 55 N.

WILLIAMSBOROUGH, a town of N. Carolina, chief of Granville county, with a flourishing academy. It has a brisk trade with the back country, and stands on a creek that flows into the Roanoke, 50 miles W.N.W. of Halifax.

WILLIAMSBURG, a town of Virginia, formerly the capital of that state. It is situate between two creeks; one flowing into James, and the other into York river; and the distance of each landing place is about a mile from the town. The college of William and Mary is fixed here; but since the removal of the seat of government, this and other public buildings are much decayed. It is 60 miles E.S.E. of Richmond. Lon. 77. 3 W. Lat. 37. 10 N.

WILLIAMSPORT, a town of Maryland, in Washington county, seated on the Potomac, at the mouth of Conegocheaque creek, six miles S.W. of Elisabethtown, and 75 N.N.W. of Washington.

WILLIAMSTADT, a strong seaport of Dutch Brabant, built by William I. prince of Orange, in 1585. It is one of the keys of Holland, is well built, and has a good harbour. This place made a gallant defence, in 1793, against the French, who were obliged to raise the siege; but it surrendered to them in 1795. It stands on that part of the Meuse called Butterfliet, 15 miles W.N.W. of Breda. Lon. 4. 30 E. Lat. 51. 39 N.

WILLICHIA, in botany, a genus of the class triandria, order monogynia. Calyx four-cleft; corol four-cleft; capsule two-celled, many-seeded. One species, a Mexican plant, with creeping, branched, hairy stem, alternate hairy leaves, beneath reddish; hairy calyx: flowers small, rosy.

WI'LLING. *a.* (from *will.*) 1. Inclined to any thing; consenting (*Bentley*). 2. Pleased; desirous (*Milton*). 3. Favourable; well disposed to any thing (*Exodus*). 4. Ready; complying (*Hooker*). 5. Chosen (*Milton*). 6. Spontaneous (*Dryden*). 7. Consenting (*Milt.*).

WI'LLINGLY. *ad.* (from *willing.*) 1. With one's own consent; without dislike; without reluctance (*Milton*). 2. By one's own desire (*Addison*).

WI'LLINGNESS. *s.* (from *willing.*) Consent; freedom from reluctance; ready compliance (*Calamy*).

WILLOW (Common). See Salix.

Willow (Crack). See Salix.

Willow (French). See Epilobium.

Willow (Spiked). See Spiræa.

Willow (Sweet). See Myrtus brabantica.

Willow (White). See Salix.

Willow-herb. See Lysimachia and Lythrum.

Willow-herb (Rosebay). See Rosebay willow-herb.

Willow-leaved oak. See Quercus phellos.

Willow (Weeping). See Babylonica.

WILLUGHBEIA, in botany, a genus of the class pentandria, order monogynia. Corol twisted, salver-shaped; stigma capitate; gourd one or two-celled. Two species, an erect tree and climbing shrub of Guiana.

WILLUGHBY (Francis), a celebrated natural historian, was the only son of sir Francis Willughby, knight. He was fond of study from his childhood, and held idleness in abhorrence; he being so great an economist with regard to his time, as not willing to lose or misapply the least part of it, by which means he attained great skill in all branches of learning, and particularly in the mathematics. But observing that the history of animals was in a great measure neglected by his countrymen, he particularly applied himself to that province; and for this purpose carefully read over what had been written on that subject by others. He then travelled several times over his native country; and afterwards into France, Spain, Italy, Germany, and the Low countries, attended by his ingenious friend Mr. John Ray. It is remarkable, that notwithstanding the advantages of birth, fortune, and parts, he was as humble as any man of the meanest fortune; was sober, temperate, and chaste; scrupulously just; so true to his word and promise, that a man might venture his estate and life upon it; so faithful and constant to his friend, as never to desert him when fortune frowned upon him; and remarkably pious, patient, and submissive to the divine will. This is the character given of him by Mr. Ray, whose veracity none will doubt. This ingenious and learned gentleman died in 1672, at 37 years of age; having impaired his health by his application. He wrote, 1. Ornithologiæ libri tres, folio, which was afterwards translated into English, with an Appendix by Mr. Ray, in folio. 2. Historiæ Piscium libri quatuor, folio. 3. Letters of Francis Willughby, Esq. added to Philosophical Letters between the learned Mr. Ray and several of his correspondents, published, in 8vo. by William Derham. 4. Several ingenious papers in the Philosophical Transactions.

WILMINGTON, a town of N. Carolina, in New Hanover county, capital of the district of its name. It has a considerable trade to the West Indies, and stands on the N.E. branch of cape Fear river, 34 miles from the sea, and 90 S.S.W. of Newbern. Lon. 78. 20 W. Lat. 34. 5 N.

WILMINGTON, a seaport of Delaware, in Newcastle county. Here are six edifices for public worship; and the town and its neighbourhood is deemed the greatest seat of manufactures in the United States. Almost the whole of the foreign exports of Delaware are from this place. It is situate on the N. side of Christiana creek, two miles W. of the river Delaware, and 28 S.W. of Philadelphia. Lon. 75. 40 W. Lat. 39. 43 N.

WILMOT (John), earl of Rochester, a great wit in the reign of Charles II. the son of Henry earl of Rochester, was born in 1648. He was taught grammar and classical learning at the free-school at Burford; where he obtained a quick relish of the beauties of the Latin tongue, and afterwards became well versed in the authors of the Augustine age. In 1659 he was admitted a nobleman of Wadham college, where he obtained the degree of master of arts. He afterwards travelled through France and Italy; and at his return was made one of the gentlemen of the bed-chamber to the king, and comptroller of Woodstock park. In 1665 he went to sea, and was in the Revenge, commanded by sir Thomas Tiddiman, when an attack was made on the port of Bergen in Norway: during the whole action he shewed the greatest resolution, and gained a high reputation for courage; which he supported in a second expedition, but afterwards lost it in a private adventure with lord Mulgrave.

Before the earl of Rochester travelled, he had given in to the most disorderly and intemperate way of living; at his return, however, he seemed to have got the better of it entirely. But falling into the company of the courtiers, who continually practised these excesses, he became so sunk in debauchery, that he was for five years together so given up to drinking, that during all that time he was never cool enough to be master of himself. His violent love of pleasure, and his disposition to extravagant mirth, carried him to great excesses. The first involved him in sensuality, and the other led him into many adventures and ridiculous frolics. Once disguising himself so that he could not be known by his nearest friends, he set up in Tower-street for an Italian mountebank, and there dispersed his nostrums for some weeks. He often disguised himself as a porter, or as a beggar, sometimes to follow a mean amour; at other times, he would go about merely for diversion, in odd shapes; and acted his part so naturally, that he could not be known even by his friends. In short, by his constant indulgence in wine, women, and irregular frolics, he entirely wore out an excellent constitution before he was thirty years of age. In October, 1679, when recovering from a violent disease, which ended in a consumption, he was visited by Dr. Burnet, upon an intimation that such a visit would be agreeable to him. Dr. Burnet published an account of his conferences with lord Rochester; in which it appears, that though he had lived the life of a libertine and atheist, yet he died the death of a penitent Christian. His death happened in 1680; since which time his poems have been various times printed, both separately and together: but when once he obtained the character of a lewd and obscene writer, every thing in that strain was fathered upon him; and thus many pieces not of his writing have crept into the later editions of his works. The author of the Catalogue of Royal and Noble Authors says, he was "a man whom the muses were fond to inspire, and ashamed to avow, and who practised without the least reserve that secret which can make verses more read for their defects than their merits. Lord Rochester's poems have much more obscenity than wit, more wit than poetry, and more poetry than politeness." His writings, besides those already mentioned, are, A Satire against Mankind; Nothing, a poem; Valentinian, a tragedy; Fifty-four letters to Henry Saville, and others: Seven more to his Wife and Son: a Letter on his deathbed to Dr. Burnet. He also left behind him several other papers, and a History of the Intrigues of the Court of Charles II. but his mother, a very devout lady, ordered all his papers to be burned.

WILNA, the capital of Lithuania, in a palatinate of the same name, and a bishop's see, with a university, an ancient castle, and a royal palace. It stands on several little eminences, and has two considerable suburbs called Antokollo and Rudaiska. Here are upward of forty churches; and the magnificent one belonging to the castle has a very rich treasury. In 1748, a dreadful conflagration destroyed thirteen churches; and in 1749, another fire happened by lightning, which consumed six churches; besides these, the Jewish synagogue, the council-house, thirty-three palaces, numerous stone edifices, and other buildings were destroyed. The churches have been rebuilt, and some of them in a more elegant manner than before; but the city has not recovered its former grandeur. Wilna was taken by the Russians in 1794, and with its territory annexed to that empire. It is seated on the Wilna, 180 miles E. of Konigsburg, and 240 N.E. of Warsaw. Lon. 25. 28 E. Lat. 54. 41 N.

WILSON (Dr. Thomas), bishop of Sodor and Man, born at Burton Wirrai, in Cheshire, in 1663. He went to Trinity college, Dublin, with a view to study physic; which he relinquished for divinity, and was ordained in 1686. In 1692, he became domestic chaplain to the earl of Derby, and preceptor to his son, lord Strange: he was so conscientious as to refuse a valuable rectory, in Yorkshire, on account of non-residence. The bishopric of the isle of Man was in a manner forced upon him, after it had laid vacant three years. He had already been created LL.D by archbishop Tennison. The revenues of the see are said to have been but 300*l*. a year in money, out of which, however, he spared a portion for the poor of his diocese. In 1699 he published a small tract in Manks and English (the first book ever printed in the Manks language) entitled, the Principles and Duties of Christianity. This worthy prelate died March 7, 1755, in the 93d of his age, and the 58th of his consecration. His works are printed in two volumes folio. His sermons have been published separately, first in four 8vo. volumes, and afterwards in four 12mo volumes. His Bible with notes, in 3 vols. 4to.

WILTON, a borough in Wiltshire, governed by a mayor, with a market on Wednesday. It was formerly the capital of the county, but is now much reduced. Here is Wilton-house, the magnificent seat of the earl of Pembroke, in which is a celebrated collection of antiques. It has a manufacture of carpets and thin woollen stuffs, and is seated between the rivers Willy and Nadder, three miles W. by N. of Salisbury, and 85 W. by S. of London.

WILTSHIRE, a county of England, 53 miles long and 38 broad; bounded on the E. by Berkshire and Hampshire, S. by Hampshire and Dorsetshire, W. by Somersetshire, and N.W. and N. by Gloucestershire. It contains 821,120 acres; is divided into 29 hundreds, and 304 parishes; has one city and 23 market-towns; and sends 34 members to parliament. The number of inhabitants in 1801 was 185,107, and in 1811 was 193,828. The air is sharp on the hills in winter, but is mild during that season in the vales. The land in the N. parts is generally hilly and woody, but very fertile; here being made that kind of cheese which is so mush esteemed as North Wiltshire. In the S. it is rich and fertile. In the middle it chiefly consists of downs, that afford the best pasture for sheep; and in the vallies, which divide the downs, are corn-fields and rich meadows. Its chief commodities are sheep, wool, wood, and stone; of this last there are excellent quarries on the banks of the Nadder, where some of the stones are 23 yards in length, and four in thickness, without a flaw. The chief manufactures are the different branches of the clothing-trade. The principal rivers are the Upper and Lower Avon, the Nadder, Willy, Bourn, and Kennet. Salisbury is the capital.

WI'LY. *a.* (from *wile.*) Cunning; sly; full of stratagem; fraudulent (*South*).

WI'MBLE. *s.* (*wimpel*, old Dutch, from *wemelen*, to bore.) An instrument with which holes are bored (*Sharp*).

Wi'mble. *a.* Active; nimble; shifting to and fro (*Spenser*).

WIMBREL, in ornithology. See Scolopax.

WIMMES, a town of Swisserland, in the canton of Bern, seated on the Sibnen, 18 miles S. of Bern. Lon. 7. 8 E. Lat. 46. 34 N.

WIMPFEN, a free imperial town of Suabia, seated on the Neckar, eight miles N. of Hailbron, and 22 E. of Heidelberg. Lon. 9. 25 E. Lat. 49. 20 N.

WI'MPLE. *s.* (*guimple*, French.) A hood; a veil (*Isaiah*).

To Wi'mple. *v. a.* To draw down as a hood or veil (*Spenser*).

WIN, in the names of men, may denote a masculine temper, from the Saxon ƿin, war, strength, &c. or else love and esteem, from ƿine, dear, beloved. In the names of places, it implies a battle fought there (*Gibson*).

To Win. *v. a.* pret *wan* and *won*; part. pass. *won* (ƿinna, Saxon; *winnen*, Dutch.) 1. To gain by conquest (*Milton*). 2. To gain the victory in a contest (*Denham*). 3. To gain something withheld, or something valuable (*Pope*). 4. To obtain; to allure to kindness or compliance (*Sidney*). 5. To gain by play (*Addison*). 6. To gain by persuasion (*Milt.*). 7. To gain by courtship (*Gay*).

To Win. *v. n.* 1. To gain the victory (*Milton*). 2. To gain influence or favour (*Dryden*). 3. To gain ground (*Shakspeare*). 4. To be conqueror or gainer at play (*Shak.*).

WINBORN, or Winborn Minster, a town in Dorsetshire, with a market on Friday. It had a monastery, in which were interred the W. Saxon kings Etheldred and Sigeforth, and queen Ethelburga. Its noble church, called the Minster, was formerly collegiate. It is seated between the Stour and Allen, six miles N. of Poole, and 102 S.W. of London. Lon. 2. 1 W. Lat. 50. 47 N.

WINCAUNTON, a town in Somersetshire, with a market on Wednesday, seated on the side of a hill, 24 miles S. of Bath, and 108 W. by S. of London. Lon. 2. 18 W. Lat. 51. 1 N.

To WINCE. *v. n.* (*gwingo*, Welsh.) To kick, as impatient of a rider, or of pain (*Shakspeare*).

WINCH. *s.* (*guincher*, French, to twist.) A windlace; something held in the hand by which a wheel or cylinder is turned (*Mort.*).

To WINCH. *v. a.* To kick with impatience; to shrink from any uneasiness (*Shak.*).

WINCHCOMB, a town in Gloucestershire, with a market on Saturday. It was formerly noted for its abbey, whose mitred abbot sat in parliament. It is seated in a deep bottom, 16 miles N.E. of Gloucester, and 93 W.N.W. of London. Lon. 2. 0 W. Lat. 51. 55 N.

WINCHELSEA, a town in Sussex, one of the cinque ports. It was built in the reign of Edward I. when a more ancient town of the same name, which had 18 churches, and was distant about three miles, was swallowed up by the sea, in a terrible tempest. The new town being sacked by the French and Spaniards, and deserted by the sea, dwindled to a mean place; but it is governed by a mayor, and sends two members to parliament. It is seated on a rocky cliff, on an inlet of the sea, and had a haven, now choked up. Three of the gates are still standing, but much decayed. Winchelsea is two miles S.W. of Rye, and 71 S.W. of London. Lon. 0. 44 E. Lat. 50. 58 N.

WINCHENDON, a town of the United States, in Massachusets. In October, 1795, it suffered considerable damage by a dreadful tornado. It is situated on Miller's river, 60 miles N.W. of Boston.

WINCHESTER, a city in Hampshire, with a market on Wednesday and Saturday. It is one mile and a half in circumference round the walls, which are greatly decayed, and through them are four gates. Here are six churches, beside the cathedral, a beautiful structure, in which were interred several Saxon kings and queens, whose bones were collected by bishop Fox, put into six small gilded coffins, and placed on a wall in the S. side of the choir. In this cathedral also is the marble coffin of William Rufus, and, among other monuments, are those of William of Wykeham, cardinal Beaufort, and Benjamin Hoadly, all bishops of this see. On a fine eminence, overlooking the city, is the shell of a palace, built for Charles II. but never finished; in the late wars it was fitted up for the reception of prisoners of war, but is now inhabited by a great number of the French emigrant clergy. Near this palace is St. Mary's college, founded by William of Wykeham, for a warden, 70 scholars, 10 fellows, three chaplains, three clerks, a schoolmaster, usher, organist, and 16 choristers: the scholars are educated for New college, Oxford. Near the S. end of the city is the hospital of St. Cross, founded by a bishop of this see, for a master, nine poor brethren, and four outpensioners. All travellers, who call at that hospital, have a right to demand some bread and beer, which is always brought to them. Near the E. gate of the city is St. John's hospital, in the hall of which the corporation give their entertainments. Winchester was of great note in the time of the Saxons, and here Egbert was crowned the first sole monarch of England. Here Henry II. held a parliament, king John resided, Henry III. was born, Richard II. held a parliament, and Henry IV. was married, as was also queen Mary I. The city is governed by a mayor, and sends two members to parliament. It is seated in a valley on the river Itchen, 21 miles N.W. of Chichester, and 63 W. by N. of London. Lon. 1. 21 W. Lat. 51. 5 N.

WINCHESTER, a town of Virginia, with a great manufacture of hats and another of saddles. It is seated on the Potomac, 115 miles N. by W. of Richmond. Lon. 78. 22 E. Lat. 39. 15 N.

WINCKELMAN (Abbé, John), a celebrated antiquarian, born at Stendall, in Brandenburg, in 1718. He was son of a shoemaker, but raised himself into celebrity by his industry and genius, and became finally president of antiquaries in the Vatican. His first public situation was that of professor in the college of Seehaussen, and he was afterwards, during seven years, librarian to count Bunau, at Nothenitz. In 1754 he went to Dresden, and in 1755 to Rome, where he enjoyed the friendship of Mengs, the painter, and the patronage of cardinals Albani and Passionei. The elector of Saxony, in 1761, gave him the direction of the royal cabinet of medals and antiquities at Dresden; and in 1762 he was appointed president of the antiquities of the apostolic chamber, and had splendid offers made him by the king of Prussia. He wrote the Critical Account of the Situation, Destruction, and Discoveries of Herculaneum, Pompeii, and Stubia, a work which obtained him so great reputation, that he was invited to Vienna in 1768, and received by the empress queen in the most gracious manner. Her majesty presented him with three valuable gold medals, one of her imperial majesty, another of the reigning emperor, and the third of the preceding emperor, Francis; a present which proved fatal to the receiver. Being arrived at Trieste on his way back to Rome, a traveller at the inn where he lodged requested to see these medals, and while Winckelman was opening the box which contained them, the villain threw a cord with a running knot round his neck in order to strangle him, but the knot stopping at his chin, he stabbed him in five different places with a knife. The unfortunate abbé being laid upon the bed, received the sacrament, made his will, and expired in the afternoon. This melancholy catastrophe happened on the 8th of June, 1768. In a few days the villain was apprehended, and broken alive on the wheel before the door of the inn where the murder of this learned and excellent man was perpetrated. He corresponded with all the learned men in Europe, and two volumes of his Letters have, since his death, been published at Amsterdam. His other works were a History of Art, and Monumenti Inediti.

WIND. *s.* (ƿinꝺ, Saxon; *wind,* Dutch.) 1. *Wind* is when any tract of air moves from the place it is in, to any other, with an impetus sensible to us: wherefore it was not ill called by the ancients, a swifter course of air; a flowing wave of air; a flux, effusion, or stream of air (*Muschenbroek*). 2. Direction of the blast from a particular point (*Shaks.*). 3. Breath; power or act of respiration (*Shaks.*). 4. Air caused by any action (*Milton*). 5. Breath modulated by an instrument (*Bacon*). 6. Air impregnated with scent (*Swift*). 7. Flatulence; windiness (*Milton*). 8. Any thing insignificant or light as wind (*Milton*). 9. *Down the* WIND. To decay (*L'Estrange*). 10. *To take or have the* WIND. To gain or have the upper hand (*Bacon*).

To WIND. *v. a.* pret. and part. *wound,* (ƿinꝺan, Saxon; *winden,* Dutch.) 1. To blow; to sound by inflation (*Dryden*). 2. To turn round; to twist (*Wotton*). 3. To regulate in motion; to turn to this or that direction (*Shakspeare*). 4. To nose; to follow by scent. 5. To turn by shifts or expedients (*Hudibras*). 6. To introduce by insinuation (*Shakspeare*). 7. To change (*Addison*). 8. To entwist; to enfold; to encircle (*Shaks.*). 9. *To* WIND *out.* To extricate (*Clarendon*). 10. *To* WIND *up.* To bring to a small compass, as a bottom of thread (*Locke*). 11. *To* WIND *up* (used of a watch.) To convolve the spring (*Shakspeare*). 12. *To* WIND *up.* To put into a state of renovated or continued motion (*Grew*). 13. *To* WIND *up.* To raise by degrees (*Hayward*). 14. *To* WIND *up.* To straiten a string by turning that on which it is rolled; to put in tune (*Waller*). 15. *To* WIND *up.* To put in order for regular action (*Shakspeare*).

To WIND. *v. n.* 1. To turn; to change (*Dryden*). 2. To turn; to be convolved (*Moxon*). 3. To move round (*Denham*). 4. 4. To proceed in flexures (*Shaks.*). 5. To be extricated; to be disentangled (*Milton*).

WIND, a sensible current in the atmosphere. The motions of the atmosphere are subject, in a certain degree, to the same laws as those of denser fluids. If we remove a portion of the water in a large reservoir, we see the surrounding water flow in to restore the equilibrium. If we impel, in any direction, a certain portion, an equal quantity moves in a contrary direction from the same cause. If a portion, being rarified by heat, or condensed by cold, ascends or descends, a counter-current in another part is the necessary and visible result. It is thus in the atmosphere. No wind can blow without a counter-current in an opposite direction; or arise without a previous destruction of the equilibrium, the general causes of which are: 1. The ascent of the air over certain tracts, heated by the sun. 2. Evaporation causing an actual increase in the volume of the atmosphere. 3. Rain, &c. causing an actual decrease in volume by the destruction of the vapour. Currents thus produced may be permanent and general, extending over a large portion of the globe; periodical, as in the Indian ocean; or variable, and as it were occasional, or at least uncertain, as the winds in temperate climates.

General or permanent winds blow always nearly in the same direction. In the Atlantic and Pacific oceans, under the equator, the wind is almost always easterly; it blows, indeed, in this direction, on both sides of the equator to the latitude of 28°. More to the northward of the equator, the wind generally blows between the north and east; and the farther north we proceed, we find the wind to blow to a more northern direction; more to the southward of the equator it blows between the south and east; and the farther to the south, the more it comes in that direction.

Between the parallels of 28° and 40° south lat. in that tract which extends from 30° west to 100° east longitude from London, the wind is variable, but it most frequently blows from between the N.W. and S.W. so that the outward-bound East-India ships generally run down their easting on the parallel of 36° south.

Navigators have given the appellation of trade-winds to these general winds.

WINDS (Periodical). Those winds which blow in a certain direction for a time, and at certain stated seasons change, and blow for an equal space of time from the opposite point of the compass, are called monsoons. During the months of April, May, June, July, August, and September, the wind blows from southward over the whole length of the Indian ocean, viz. between the parallels of 28° N. and 28° S. lat. and between the eastern coast of Africa and the meridian which passes through the western part of Japan; but in the other months, October, November, December, January, February, and March, the winds in all the northern parts of the Indian ocean shift round, and blow directly contrary to the course they held in the former six months. For some days before and after the change, there are calms, variable winds, and tremendous storms, with thunder, &c.

Philosophers differ in their opinions respecting the cause of these periodical winds; but a more probable theory of the general trade-winds is, that they are occasioned by the heat of the sun in the regions about the equator, where the air is heated to a greater degree, and consequently rarefied more than in the more northern parts of the globe. From this expansion of the air in these tropical regions, the denser air, in higher latitudes, rushes violently towards the equator from both sides of the globe. By this conflux of the denser air, without any other circumstances intervening, a direct northerly wind would be produced in the northern tropic, and a southern one in the other tropic; but as the earth's diurnal motion varies the direct influence of the sun over the surface of the earth, and as by that motion this influence is communicated from east to west, an easterly wind would be produced if this influence alone prevailed. On account of the cooperation of these two causes at the same time, the trade-winds blow naturally from the N.E. on the north, and from the S.E. on the south of the line, throughout the whole year; but as the sun approaches nearer the tropic of Cancer in our summer season, the point towards which these winds are directed will not be invariably the same, but they will incline more towards the north in that season, and more towards the south in our winter.

The land and sea breezes in the tropical climates may be considered as partial interruptions of the general trade-winds; and the cause of these it is not very difficult to explain. From water being a better conductor of heat than earth, the water is always of a more even temperature. During the day, therefore, the land becomes considerably heated, the air rarefied, and consequently in the afternoon a breeze sets in from the sea, which is less heated at that time than the land. On the other hand, during the night the earth loses it surplus heat, while the sea continues more even in its temperature. Towards morning, therefore, a breeze regularly proceeds from the land towards the ocean, where the air is warmer, and consequently more rarefied, than on shore.

The cause of the monsoons is not so well understood as that of the general trade-winds, but what has been just remarked suggests, at least, a probable theory on the subject. It is well known, that at the equator the changes of heat and cold are occasioned by the diurnal motion of the earth, and that the difference between the heat of the day and the night is almost all that is perceived in those tropical regions; whereas in the polar regions the great vicissitudes of heat and cold are occasioned by the annual motion of the globe, which produces the sensible changes of winter and summer; consequently, if the heat of the sun was the only cause of the variation of the winds, the changes, if any, that would be produced by those means in equatorial regions, ought to be diurnal only, but the changes about the pole should be experienced only once in six months. As the effects arising from the heat of the sun upon the air must be greater at the equator than at the poles, the changes of the wind arising from the expansion of the air by the sun's rays must be more steady in equatorial than in polar regions. The incontrovertible evidence of navigators proves this truth, that winds are more variable towards the poles, and more constant towards the equator. But in summer, the continual heat, even in high latitudes, comes to be sensibly felt, and produces changes on the wind, which are distinctly perceptible. In our own cold region, the effects of the sun on the wind are felt during the summer months; for while the weather in that season of the year is fine, the wind generally becomes stronger as the time of the day advances, and dies away towards the evening, and assumes that pleasing serenity so delightful to our feelings. Such are the diurnal changes of the wind in northern climates. The annual revolution of the sun produces still more sensible effects. The prevalence of the western winds during summer we may attribute to this cause, which is still more perceptible in France and Spain; because the continent of land to the eastward, being heated more than the waters of the Atlantic ocean, the air is drawn, during that season, towards the east, and consequently produces a western wind.

But these effects are much more perceptible in countries near the tropics than with us. For when the sun approaches the tropic of Cancer, the soil of Persia, Bengal, China, and the adjoining countries, becomes so much more heated than the sea to the southward of those countries, that the current of the general trade-wind is interrupted, so as to blow, at that season, from the south to the north, contrary to what it would do if no land was there. But as the high mountains of Africa, during all the year, are extremely cold, the low countries of India, to the eastward of it, become hotter than Africa in summer, and the air is naturally drawn thence to the eastward. From the same cause it follows, that the trade-wind in the Indian ocean, from April till October, blows in a north-east direction, contrary to that of the general trade-wind in open seas in the same latitude; but when the sun retires towards the tropic of Capricorn, these northern parts become cooler, and the general trade-wind assumes its natural direction.

Having given the most obvious causes of the periodical monsoons in the Indian seas, it is necessary to observe, that no monsoon takes place to the southward of the equator, except in that part of the ocean adjoining to New Holland. There the same causes concur to produce a monsoon as in the northern tropic, and similar appearances take place. From October till April the monsoon sets in from the N.W. to S.E. opposite to the general course of the trade-wind on the other side of the line; and here also the general trade-wind resumes its usual course during the other months, which constitute the winter season in these regions. It may not be improper to conclude this account of the tropical winds, by enumerating some of the principal inflections of the monsoons.

Between the months of April and October the winds blow constantly from W.S.W. in all that part of the Indian ocean which lies between Madagascar and cape Comorin, and in the contrary direction from October till April, with some small variation in different places; but in the bay of Bengal these winds are neither so strong nor so constant as in the Indian ocean. It must also be remarked, that the S.W. winds in those seas are more southerly on the African side, and more westerly on the side of India; but these variations are not so great as to be repugnant to the general theory. The cause of this variation is, as was before intimated, that the mountainous lands of Africa are colder than the flatter regions of Arabia and India; consequently the wind naturally blows from these cold mountains, in the summer season, towards the warmer lands of Asia, which occasions those inflections of the wind to the eastward during the summer months. The peninsula of India lying so much farther to the south than the kingdoms of Arabia and Persia, adds greatly to this effect; because the wind naturally draws towards them, and produces that easterly variation of the monsoon which takes place in this part of the ocean, while the sandy deserts of Arabia draw the winds more directly northward, near the African coast. A similar chain of reasoning will serve to explain any other inflections or variations that may occur in the perusal of books of travels, &c.

Winds (Variable). In the temperate zones the direction of the winds is by no means so regular as between the tropics. Even in the same degree of latitude we find them often blowing in different directions at the same time; while their changes are frequently so sudden and so capricious, that to account for them has hitherto been found impossible. When winds are violent, and continue long, they generally extend over a large tract of country; and this is more certainly the case when they blow from the north or east than from any other points. By the multiplication and comparison of meteorological tables, some regular connection between the changes of the atmosphere in different places may, in time, be observed, which will at last lead to a satisfactory theory of the winds! It is from such tables chiefly, that the following facts have been collected:

In Virginia, the prevailing winds are between the south-west, west, north, and north-west; the most frequent is the south-west, which blows more constantly in June, July, and August, than at any other season. The north-west winds blow most constantly in November, January, and February. At Ipswich, in New England, the prevailing winds are also between the south-west, west, north, and north-east; the most frequent is the north-west. But at Cambridge, in the same province, the most frequent wind is the south-east. The predominant winds at New York are the north and west; and in Nova Scotia north-west winds blow for three-fourths of the year. The same wind blows most frequently at Montreal in Canada; but at Quebec the wind generally follows the direction of the river St. Lawrence, blowing either from the north-east or south-west. At Hudson's-bay westerly winds blow for three-fourths of the year; the north-west wind occasions the greatest cold, but the north and north-east are the vehicles of snow.

It appears from these facts, that westerly winds are most frequent over the whole eastern coast of North America; that in the southern provinces, south-west winds predominate; and that the north-west become gradually more frequent as we approach the frigid zone.

In Egypt, during part of May, and during June, July, August, and September, the wind blows almost constantly from the north, varying sometimes in June to the west, and in July to the west and the east; during part of September, and in October and November, the winds are variable, but blow more regularly from the east than any other quarter; in December, January, and February, they blow from the north, north-west, and west; towards the end of February they change to the south, in which quarter they continue till near the end of March; during the last days in March and in April, they blow from the south-east, south, and south-west, and at last from the east; and in this direction they continue during a part of May.

In the Mediterranean the wind blows nearly three-fourths of the year from the north; about the equinoxes there is always an easterly wind in that sea, which is generally more constant in spring than in autumn. These observations do not apply to the gut of Gibraltar, where there are seldom any winds except the east and the west. At Bastia, in the island of Corsica, the prevailing wind is the south-west.

In Syria the north wind blows from the autumnal equinox to November; during December, January, and February, the winds blow from the west and south-west; in March they blow from the south, in May from the east, and in June from the north. From this month to the autumnal equinox, the wind changes gradually as the sun approaches the equator; first to the east, then to the south, and lastly to the west. At Bagdad, the most frequent winds are the south-west and north-west; at Pekin, the north and the south; at Kamtschatka, on the north-east coast of Asia, the prevailing winds blow from the west.

In Italy, the prevailing winds differ considerably according to the situation of the places where the observations have been made: at Rome and Padua, they are northerly, at Milan easterly. All that we have been able to learn concerning Spain and Portugal is, that on the west coast of these countries, the west is by far the most common wind, particularly in summer; and that at Madrid the wind is north-east for the greatest part of the summer, blowing almost constantly from the Pyrenean mountains. At Berne in Switzerland, the prevailing winds are the north and west; at St. Gothard, the north-east; at Lausanne, the north-west and south-west.

Father Cotte has given us the result of observations made at 86 different places of France; from which it appears, that along the whole south coast of that kingdom the wind blows most frequently from the north, north-west, and north-east; on the west coast, from the west, south-west, and north-west; and on the north coast from the south-west. That in the interior parts of France, the south-west wind blows most frequently in 18 places; the west wind in 14; the north in 13; the south in 6; the north-east in 4; the south-east in 2; the east and north-west each of them one. On the west coast of the Netherlands, as far as Rotterdam, the prevailing winds are probably the south-west, at least, this is the case at Dunkirk and Rotterdam. It is probable also, that along the rest of this coast, from the Hague to Hamburgh, the prevailing winds are the north-west, at least these winds are most frequent at the Hague and at Franeker. The prevailing wind at Delft is the south-east; and at Breda, the north and the east.

In Germany, the east wind is most frequent at Gottingen, Munich, Weissenburgh, Dusseldorf, Saganum, Erford, and at Buda in Hungary; the south-east at Prague and Wirtzburg; the north-east at Ratisbon; and the west at Manheim and Berlin.

From an average of ten years of the register kept by order of the Royal Society, it appears that at London the winds blow in the following order:

Winds.	Days.	Winds.	Days.
South-west	112	South-east	32
North-east	58	East	26
North-west	50	South	18
West	53	North	16

It appears, from the same register, that the south-west wind blows at an average more frequently than any other wind during every month of the year, and that it blows longest in July and August; that the north-east blows most constantly during January, March, April, May, and June, and most seldom during February, July, September, and December; and that the north-west wind blows oftener from November to March, and more seldom during September and October than any other months. The south-west winds are also most frequent at Bristol, and next to them are the north-east.

The following table of the winds at Lancaster has been drawn up from a register kept for seven years at that place:

Winds.	Days.	Winds.	Days.
South-west	92	South-east	35
North-east	67	North	30
South	51	North-west	26
West	41	East	17

The following table is an abstract of nine years observations made at Dumfries by Mr. Copland:

Winds.	Days.	Winds.	Days.
South	82½	North	36½
West	69	North-west	25½
East	68	South east	28½
South-west	50½	North-east	14½

The following table is an abstract of seven years observations made by Dr. Meek at Cambuslang, near Glasgow:

Winds.	Days.	Winds.	Days.
South-west	174	North-east	104
North-west	40	South-east	47

It appears from the register from which this table was extracted, that the north-east wind blows much more frequently in April, May, and June, and the south-west in July, August, and September, than at any other period. The south-west is by far the most frequent wind all over Scotland, especially on the west coast. At Saltcoats, in Ayrshire, for instance, it blows three-fourths of the year; and along the whole coast of Murray, on the north-east side of Scotland, it blows for two-thirds of the year. East winds are common over all Great Britain during April and May; but their influence is felt most severely on the eastern coast.

The following table exhibits a view of the number of days during which the westerly and easterly winds blow in a year at different parts of the island. Under the term westerly are included the north-west, west, south-west, and south; the term easterly is taken in the same latitude.

Years of Observ.	Places.	Wind.	
		Westerly	Easterly
10	London	233	132
7	Lancaster . . .	216	149
51	Liverpool . . .	190	175
9	Dumfries	227.5	137.5
10	Branxholm, fifty-four miles south-west of Berwick	232	133
7	Cambuslang . .	214	151
8	Hawkhill, near Edinburgh .	229.5	135.5
	Mean	220.3	144.7

In Ireland the south-west and west are the grand trade-winds, blowing most in summer, autumn, and winter, and least in spring. The north-east blows most in spring, and nearly double to what it does in autumn and winter. The south-east and north-west are nearly equal, and are most frequent after the south-west and west.

At Copenhagen the prevailing winds are the east and south-east; at Stockholm, the west and north. In Russia, from an average of a register of 16 years, the winds blow from November to April in the following order:

	W.	N.W.	E.	S.W.	S.	N.E.	N.	S.E.
Days	45	26	23	22	20	19	14	12

And during the other six months,

	W.	N.W.	E.	S.W.	S.	N.E.	N.	S.E.
Days	27	27	19	24	22	15	32	18

The west wind blows during the whole year 72 days; the north-west 58; the south-west and north 46 days each. During summer it is calm for 41 days, and during winter for 21. In Norway, the most frequent winds are the south, the south-west, and south-east. The wind at Bergen is seldom directly west, but generally south-west or south-east; a north-west, and especially a north-east wind, are but little known there.

From the whole of these facts, it appears that the most frequent winds on the south coasts of Europe are the north, the north-east, and north-west; and on the western coast, the south-west: that in the interior parts which lie most contiguous to the Atlantic ocean, south-west winds are also most frequent; but that easterly winds prevail in Germany. Westerly winds are also most frequent on the north-east coast of Asia.

It is probable that the winds are more constant in the south temperate zone, which is in a great measure covered with water, than in the north temperate zone, where their direction must be frequently interrupted and altered by mountains and other causes.

M. De la Caille, who was sent thither by the French king to make astronomical observations, informs us, that at the Cape of Good Hope the main winds are the south-east and north-west; that other winds seldom last longer than a few days; and that the east and north-east winds blow very seldom. The south-east wind blows in most months of the year, but chiefly from October to April; the north-west prevails during the other six months, bringing along with it rain, and tempests, and hurricanes. Between the Cape of Good Hope and New Holland, the winds are commonly westerly, and blow in the following order: north-west, south-west, west, north.

In the Great South Sea, from latitude 30° to 40° south, the south-east trade-wind blows most frequently, especially when the sun approaches the tropic of Capricorn; the wind next to it in frequency is the north-west, and next to that is the south-west. From south latitude 40° to 50°, the prevailing wind is the north-west, and next the south-west. From 50° to 60°, the most frequent wind is also the north-west, and next to it is the west.

Thus it appears that the trade-winds sometimes extend farther into the south temperate zone than their usual limits, particularly during summer; that beyond their influence the winds are commonly westerly, and that they blow in the following order: north-west, south-west, west.

Such is the present state of the history of the direction of the winds. In the torrid zone they blow constantly from the north-east on the north side of the equator, and from the south east on the south side of it. In the north temperate zone they blow most frequently from the south-west; in the south temperate zone from the north-west, changing, however, frequently to all points of the compass; and in the north temperate zone blowing, particularly during spring, from the north-east.

As to the velocity of the wind, its variations are almost infinite; from the gentlest breeze, to the hurricane which tears up trees and blows down houses. It has been remarked, that our most violent winds take place when neither the heat nor the cold is greatest; that violent winds generally extend over a great tract of country, and that they are accompanied by sudden and great falls in the mercury of the barometer. The reason appears to be, that violent winds succeed the precipitation in rain of a large quantity of vapour, which previously constituted a part of the bulk of the atmosphere; and this precipitation cannot take place when the general temperature approaches to either extreme. The wind is sometimes very violent at a distance from the earth, while it is quite calm at its surface. On one occasion Lunardi went at the rate of 70 miles an hour in his balloon, though it was quite calm at Edinburgh when he ascended, and continued so during his whole voyage. The same thing happened to Garnerin and his companion in their aerostatic voyage to Colchester. This again may be illustrated by the motions of dense fluids, which are always impeded in the parts contiguous to the sides and bottom of the vessels; and the same thing happens in tide-rivers, where the boatman, when he wishes to proceed with the tide, commits himself to the middle of the stream: but when he has to strive against it, he keeps close to the shore. It is, therefore, not the upper parts of the atmosphere which are accelerated, but the lower are retarded by friction against the surface of the earth.

The following table, drawn up by Mr. Smeaton, will give the reader a pretty precise idea of the velocity of the wind in different circumstances:

Miles per Hour.	Feet per Second.	Perpendicular Force on one square Foot, in Avoirdupois Pounds and Parts.	
1	1.47	.005	Hardly perceptible
2	2.93	.020	Just perceptible
3	4.4	.044	
4	5.87	.079	Gently pleasant
5	7.33	.123	
10	14 67	.492	Pleasant, brisk
15	22.	1.107	
20	29.34	1.968	Very brisk
25	36.67	3.075	
30	44.01	4.429	High wind
35	51.34	6.027	
40	58.68	7.873	Very high wind
45	66.01	9.963	
50	73.35	12.300	Storm or tempest
60	88.02	17.715	Great storm
80	117.36	31.490	Hurricane
100	146.7	49.200	Hurricane that tears up trees, and carries buildings before it.

WINDAGE OF A GUN, is the difference between the diameter of the bore of the gun and the diameter of the ball.

Heretofore the windage appointed in the English service, viz. 1-20th of the diameter of the ball, which has been used almost from the beginning, has been far too much, owing, perhaps, to the first want of roundness in the ball, or to rust, foulness, or irregularities in the bore of the gun. But lately a beginning has been made to diminish the windage, which cannot fail to be of very great advantage; as the shot will both go much truer, and have less room to bounce about from side to side, to the great damage of the gun; and besides, much less powder will serve for the same effect, as in some cases ⅓ or ½ the inflamed powder escapes by the windage. The French allowance of windage is 1-25th of the diameter of the ball. For more on this subject, see the valuable experiments described in Hutton's Tracts, vols. ii. and iii.

WINDAW, a town of the duchy of Courland, with a castle, and a harbour at the mouth of the Wetaw, in the Baltic, 70 miles N.W. of Mittaw, and 100 N. of Memel. Lon. 22. 5 E. Lat. 57. 20 N.

WI'NDBOUND. *a.* (*wind* and *bound.*) Confined by contrary winds (*Spectator*).

WI'NDEGG. *s.* An egg not impregnated; an egg that does not contain the principles of life (*Brown*).

WI'NDER. *s.* (from *wind.*) 1. An instrument or person by which any thing is turned round (*Swift*). 3. A plant that twists itself round others (*Bacon*).

WINDERMERE-WATER, or WINANDER-MERE, the most extensive lake in England, lying between Westmorland and Lancashire. It extends 10 miles from N. to S., but in no part broader than a mile; and exhibits a greater variety of fine landscapes than any lake in England. It is famous for its fine char, and abounds also with trout, perch, pike, and eel. It has a communication on the W. with Esthwaite-water; and its principal feeders are the rivers Rothay and Brathay. This lake is frequently intersected by promontories, and spotted with islands. Among these, the Holme, or Great Island, an oblong tract of 30 acres, crosses the lake in an oblique line, surrounded by a number of inferior isles, finely wooded. Not one bulrush, or swampy reed, defiles the margin of this lake.

WI'NDFALL. *s.* (*wind* and *fall.*) 1. Fruit blown down from the tree (*Evelyn*). 2. An unexpected legacy.

WIND-FLOWER, in botany. See ANEMONE.

WIND-GALL, a puffy kind of swelling or tumour on the joints of horses which yields to the pressure of the finger, but, upon removing the pressure, recovers itself, and pushes out as before. It has been thus named from a false notion of its containing nothing but air, or wind. These tumours are often seated on both sides of the back-sinew of a horse, above the fetlock on the fore-legs, but most frequently on the hind-legs. They are quite loose and detached from the parts on which they grow, and exhibit the same signs wherever they are met with, whether in the hocks or about the knees; for these swellings are not confined to the lower limbs only, but appear in any of those parts of a horse's body where the cellular membrane can be easily separated; and they exist, for the most part, without occasioning any pain.

Wind-galls are usually caused by riding on very hard roads, or on dry hilly grounds. Sometimes travelling horses, when they are worked too young, before the limbs are grown firm and vigorous, will have them. Gibson says they sometimes proceed from constitutional weakness, especially in bulky horses. They generally recover, however, with a day's rest. Those flatulent swellings, indeed, that come in the ligaments of the hocks are always troublesome, disfigure the animal, and, unless speedily assisted, will cause incurable lameness. At first they are but small, but in time they grow to the size of a pullet's egg perhaps, and push out on each side of the hollow of the hock. Swellings of the same kind also appear above the knee, where they often precede a diseased joint. Very small similar swellings under the fore-part of the knee, in the interstices of both sides of the joint, are also dangerous; but these seldom happen, and are usually caused by some violent strain, especially when a horse falls down upon a descent with his whole weight upon his knees. The other flatulent swellings which horses are subject to seldom cause lameness, but are, for the most part, easily cured. We mean those that arise in the insterstices of the large muscles of the hips and thighs, which are distended like little bladders filled with air. These come by strains and over exertion; for draught horses are the most subject to them of all others. Wind-galls that proceed from mere weakness are seldom curable, unless the constitution can be improved; but we often see horses that were subject to wind-galls when young get the better of them as they grow to maturity.

Wind-galls that proceed from hard riding, or the other causes above-mentioned, are more easily prevented than cured; for though few horses go lame with these tumours, yet they always disfigure the part where they are situated; and therefore young horses of value ought not to travel much, especially with heavy riders, before they come to their full strength. If they swell about the pasterns, and the swelling does not ascend towards the knee, but with an apparent fulness on each side the back sinew, it is to be suspected wind-galls are taking place. With a view to prevent their progress, Gibson advises us to bathe them well with vinegar or verjuice, or other powerful astringents.

But when wind-galls are grown pretty large, they feel like kernels or indurated glands. If these be in the hind legs, it is scarce worth while to meddle with them; as we see many good hacks and road horses travel long journeys with these defects without going lame; but when they are situated on the fore-legs they are apt to make a horse trip and stumble, or, at least, appear very stiff after riding. In this case the cure may be attempted by mild blisters. Some merely pierce them with a lancet, but that often inflames and renders them more obstinate, whilst blisters, often repeated, dissipate them effectually. Gibson says, blistering always has this effect in those wind-galls that arise above the fetlock, and sometimes he has known blistering alone to succeed in these tumours when situated on the hocks; but this has been repeated, at times, for the space of a year or a year and a half, working the horse as usual in all the intervals. These accidents happen chiefly to coach-horses and others that draw heavy loads, and the best way to manage their blisters is this: a little blistering ointment should be laid on every other day for a week, which brings on a plentiful discharge, and when this is dried up, which generally happens in a few days, the horse may go to his usual work for three weeks or a month, after which the blistering may be repeated, if it be a convenient time for the owner, or at any other season when the horse can have a little rest. Horses have been blistered in this manner six or eight times within the year, by which means they daily got some ground. The swellings gradually were reduced, the parts strengthened, and no manner of blemish has been left, nor any loss of hair, and the lameness has been entirely removed. Firing is, indeed, a more expeditious remedy, being but a single operation, which is seldom or never repeated; yet firing not only leaves blemishes, but Gibson asserts, it is, for the most part, an imperfect cure, as there always remains a stiffness and fulness about the joint; and the only good obtained by it is, that it stops the progress of the malady, and renders the horse much more useful than he was before the operation.

For those flatulent swellings that sometimes rise near the joint of a horse's knee, if astringent applications have not force enough to remove them, the best way is to blister without delay, for when these are seated near the knee they prove dangerous, unless speedily removed. For this reason firing is also proper after blistering; but this should be done with a small iron, and the lines or rases made as near to one another as possible, afterwards covering the whole knee with a mercurial application.

WIND-GAGE. See ANEMOMETER.

WIND-GUN. See AIR-GUN.

WI'NDINESS. *s.* (from *windy.*) 1. Fulness of wind; flatulence (*Floyer*). 2. Tendency to generate wind (*Bacon*). 3. Tumour; puffiness (*Brerewood*).

WI'NDING. *s.* (from *wind.*) Flexure; meander (*Addison*).

WI'NDINGSHEET. *s.* (*wind* and *sheet.*) A sheet in which the dead are enwrapped (*Shakspeare*).

WINDLASS, or WINDLACE, a particular machine used for raising heavy weights, as guns, stones, anchors, &c.

This is a very simple machine, consisting only of an axis or roller, supported horizontally at the two ends by two pieces of wood and a pulley: the two pieces of wood meet at top, being placed diagonally so as to prop each other; and the axis or roller goes through the two pieces, and turns in them. The pulley is fastened at top, where the pieces join. Lastly, there are two staves or hand-spikes which go through the roller, to turn it by; and the rope, which comes over the pulley, is wound off and on the same.

Windlass, in a ship, is an instrument, in small ships placed upon the deck, just abaft the foremast. It is made of a piece of timber six or eight feet square, in form of an axle-tree, whose length is placed horizontally upon two pieces of wood at the ends, and upon which it is turned about by the help of hand-spikes put into holes made for that purpose. This instrument serves for weighing anchors, or hoisting of any weight in or out of the ship, and will purchase much more than any capstan, and that without any danger to those who heave: for if in heaving the windlass about any of the handspikes should happen to break, the windlass would pall of itself.

WINDMILL, a machine turned by the power of the wind, which is caused to act upon vanes or sails, and give them a rotary motion. The external structure of the common windmill is well known to every person, but the interior mechanism not being so generally understood, we have given (in plate 175) a vertical section of a whole mill, which is upon the best construction. The four sails are fixed to an iron axis AA, by screwing them to an iron cross at one end of it. Two of these sails are marked BB; upon the axis within the mill a cog wheel D is fixed, and this turns a wheel C, on the upper end of a vertical shaft, EE, extending from the top to the bottom of the mill, to turn the machinery: on the lower end of it is a large wheel F, which turns two pinions *a a*, upon the spindles of the mill-stones *b b;* these are on the same construction as those described in our article Flour-mill, to which we refer. At G is a wheel upon the main axis, giving motion to a pinion on an horizontal shaft H, which has one or more wheels upon it, to receive an endless rope for turning the bolting and dressing machines; for a description of which see Bolting-mill.

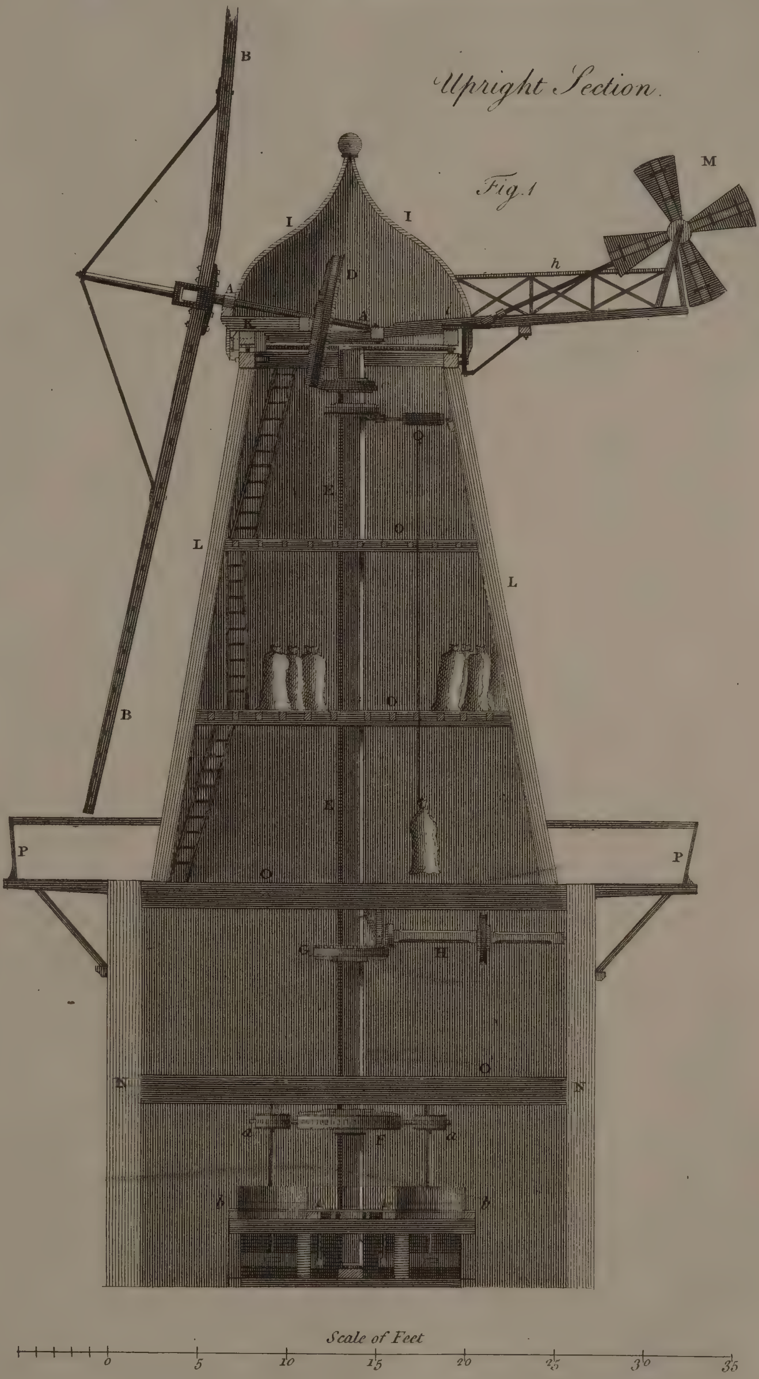
We will now enter more fully into the mechanism of the upper part of the mill, which is called its head or cap, marked I I, and contains the axis A A. This is supported upon bearings, one near the sails and the other at its extreme end, as is shewn in fig. 2, plate 176, which is an horizontal section of the head, shewing the circular kirb or wooden ring K, and the framing which is bolted upon it to support the axis.

The construction of the axis is shewn in figs. 3 and 4 of plate 176. It consists of an octagonal iron shaft with two cylindrical necks at *c* and *d*, where it rests upon its bearings. At the end it has a kind of box *e*, which has two mortices through it in perpendicular directions to receive the sails B B. At the back of one of these mortices, and the front of the other, a projecting arm is left in the casting to receive screw bolts, which hold the sails fast in the mortices: the cog wheel is fitted on at D, its arms being bolted against a flaunch, cast on the axis. The sails are braced by an iron stay *f* to each arm, proceeding from the end of a pole *g*, which is fixed at the end of the cast iron axis. The sails are formed of a sail cloth, spread upon a kind of lattice-work or framing, composed of rails morticed into the arms of the sails B B. The plane of these frames is inclined to the plane of the sails' motion, at such an angle, that the wind blowing in the direction of the axis, acts upon them as inclined planes, and turns them about, with a power proportionate to the size of the sails and force of the wind. It is necessary as the wind changes its direction to turn the sails about, that the axis may be always in the direction of the wind; this motion is effected by turning the head of the mill round upon the walls or frame L L, composing the body of the mill. At the top of this is a circular kirb, upon which a number of rollers are placed, and the kirb K of the cap lies upon these rollers, which are kept equidistant from each other by their centre pins being fitted into a circular hoop. By this means, though the head with the wheels and sails weigh many tons, they can be turned round to face the wind by a slight power; but in the best kind of windmill, such as is represented in our plate 175, the head is contrived to turn itself about whenever the wind changes. This is done by a small pair of sails M, fixed up in a frame projecting from the back of the head; it has a wheel upon its axis turning another upon an inclined axis *h*, and this has a pinion turning a wheel *i* upon a vertical axis, at the lower end of which is a pinion working in a range of cogs, fixed round in the outside of the kirb. By this means, whenever the vane M is turned it moves the head of the mill slowly round, and with proportionate power. Now if ever the wind varies in the least from the direction of the axis, it acts obliquely upon the vanes M, and turns them round, at the same time setting the head right again. But when the axis is right, the wind blows in the plane of the vanes, and has no effect upon them. The head of the mill is kept firmly in its place by rollers, figs. 5 and 6; the frames of these are bolted to the lower side of the framing of the head, and then the rollers apply to the inside of the kirb K: there are eight of these rollers, four of each kind. The pivot at the upper end of the vertical shaft E is supported in a bearing bolted to a cross beam in the framing of the head of the mill, and this is precisely in the centre of the head, that it may not vary as the head turns round. Many other things are so evident in the drawings as to need little explanation. Such are the walls N N, the different floors O O: at P P is a circular gallery all round the mill for the miller to go round, to take the cloth off the sails in high winds, or when the mill is to stop; this is done by untying the cloth at the extremity of the sails, and twisting it up like a rope, and tying the end of it again, in which state it presents no surface to the wind. At Q is a roller turned round by a wheel on the vertical shaft E;

WINDMILL.

Upright Section.

Fig. 1



J. Farey Junr. Mutlow sc. Ruſsell Ct.

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it is used to draw up the sacks of corn from the bottom of the mill into the upper part, which is used as a storehouse.

For other particulars connected with windmills the reader may consult Smeaton's Experimental Enquiries, and Gregory's Mechanics.

WINDOW, an aperture or open place in the wall of a house to let in the light. (See ARCHITECTURE.) The word is Welch, *uynt dor*, signifying the passage for the wind. Window is yet provincially denominated *windor* in Lancashire; i. e. wind-door, or the passage for air, as that for people was peculiarly called the door. Before the use of glass became general, which was not till towards the end of the twelfth century, the windows in Britain seem generally to have been composed of paper. Properly prepared with oil, this forms no contemptible defence against the intrusions of the weather, and makes no incompetent opening for the admission of the light. It is still used by our architects for the temporary windows of unfinished houses, and not unfrequently for the regular ones of our work-shops. But some of the principal buildings we may reasonably suppose to have been windowed in a superior manner. They could, however, be furnished merely with lattices of wood or sheets of linen, as these two remained the only furniture of our cathedrals nearly to the eighth century; and the lattices continued in some of the meaner towns of Lancashire to the eighteenth; and in many districts of Wales, and many of the adjoining parts of England, are in use even to the present moment. These seem all to have been fixed in frames that were called *capsamenta*, and now therefore casements in Wales and Lancashire.

To WI'NDOW. *v. a.* (from the noun.) 1. To furnish with windows (*Wotton*). 2. To place at a window (*Shakspeare*). 3. To break into openings (*Shakspeare*).

WI'NDPIPE. *s.* (*wind* and *pipe.*) The passage for the breath (*Arbuthnot*).

WIND-SAILS, in a ship, are made of the common sail cloth, and are usually between twenty-five and thirty feet long, according to the size of the ship, and are of the form of a cone ending obtusely: when they are made use of, they are hoisted by ropes to about two-thirds or more of their height, with their bases distended circularly hoops, and their apex hanging downwards in the hatchways of the ship; above each of these one of the common sails is so disposed, that the greatest part of the air rushing against it is directed into the wind-sail, and conveyed, as through a funnel, into the upper parts of the body of the ship.

WINDSHEIM, an imperial town of Franconia, 28 miles S.W. of Wurtzburg, and 36 S.S.W. of Bamberg. Lon. 10. 25 E. Lat. 49. 25 N.

WINDSOR, a town of Vermont, in the county of Windsor, where the assembly commonly holds its session, although Bennington is the principal town. It is seated on the river Connecticut, 98 miles N.E. of Bennington.

WINDSOR, a town of the state of Connecticut, situate on the river Connecticut, three miles N. of Hartford.

WINDSOR, a town of N. Carolina, situate on the Cushai, 23 miles W. of Edenton.

WINDSOR, a considerable borough in Berkshire, seated on an eminence, on the Thames, with a market on Saturday. It is celebrated for its magnificent castle, built originally by William the Conqueror, and enlarged by Henry I. It was the residence of the succeeding monarchs, till Edward III. (who was born in it) caused the ancient building to be taken down, and erected the present structure and St. George's chapel, and instituted the order of the garter. Great additions were made to it by Edward IV., Henry VII., Henry VIII. and Elisabeth. Charles II. restored the castle to its pristine splendour: he enlarged the windows, and made them regular; furnished the royal apartments with paintings; enlarged the terrace walk, made by queen Elisabeth on the N. side of the castle; and carried another terrace round the E. and S. sides. His present majesty has also made very fine improvements in it. This castle is seated on a high hill, which rises by a gentle ascent. On the declivity of this hill is the fine terrace, faced with a rampart of freestone, 1870 feet in length: it is one of the noblest walks in Europe, with respect to strength, grandeur, and prospects. From that part of the castle, called the Round Tower, is an extensive view to London, and into the counties of Berks, Middlesex, Essex, Herts, Bucks, Oxford, Wilts, Hants, Surry, Sussex, Kent, and Bedford. St. George's Chapel, or the collegiate church, which stands between the upper and lower courts, is a beautiful Gothic structure, originally erected by Edward III., in 1377, in honour of the order of the garter. Edward IV., finding it not completed, enlarged the design, and began the present building, which was finished by Henry VII. The interior architecture is greatly admired, particularly its stone roof; and the whole was repaired and beautified in 1790. In this chapel are interred Henry VI., Edward IV., Henry VIII., his queen Jane Seymour, and Charles I. The royal foundations in this castle are; the order of the garter, instituted in 1349, consisting of the sovereign, and 25 knights companions, exclusive of the princes of the blood royal; and the royal college of St. George, consisting of a dean, 12 canons, seven minor canons, and 18 poor knights. Opposite the S.E. side of the castle is a modern-built mansion, called the Queen's Lodge, which is the royal residence in summer; and below this is the Lower Lodge, for the accommodation of the younger branches of the royal family. Adjoining the Queen's Lodge is the Little Park, which extends round the N. and E. sides of the castle, and forms a beautiful lawn, four miles in circumference. On the S. side of the town is the Great Park, which is 14 miles in circumference. It has a noble road from the town, through a double plantation of trees, to the Ranger's Lodge, which was a favourite residence of William duke of Cumberland, who laid out vast sums in the decoration of different parts of the park. On the death of the last ranger, Henry Frederic duke of Cumberland, his majesty took the management of this park into his own hands: and the improvements made by his majesty are very considerable with respect to agricultural utility, as well as rural beauty. Windsor is 17 miles E. by N. of Reading, and 22 W. of London. Lon. 0. 36 W. Lat. 51. 30 N.

WINDSOR FOREST, a forest in the E. part of Berkshire, 30 miles in circumference. Though the soil is generally barren and uncultivated it is finely diversified by hills and dales, woods and lawns, and delightful villas. It contains several towns and villages, of which Oakingham, near the centre of the forest, is the principal.

WI'NDWARD. *ad.* (from *wind.*) Toward the wind.

WI'NDY. *a.* (from *wind.*) 1. Consisting of wind (*Bacon*). 2. Next the wind (*Shakspeare*). 3. Empty; airy (*South*). 4. Tempestuous; molested with wind (*Milton*). 5. Puffy; flatulent (*Shakspeare*).

WINE, the fermented juice of the grape or other vegetable fruits, as beer or wash is the fermented decoction of vegetable seeds, for which see SPIRITS *distilled*.

There is a considerable number of ripe fruits from which a sweet liquor may be expressed, having, at the same time, a certain degree of acidity. Of such fruits we have in this country the apple, the cherry, the gooseberry, the currant, &c.: but by far the most valuable of these fruits is the grape, which grows luxuriantly in the southern parts of Europe.

From grapes fully ripe may be expressed a liquid of a sweet taste, to which the name of *must* has been given. This liquid is composed almost entirely of five ingredients, viz. water, sugar, jelly, gluten, and tartaric acid partly saturated with potash. The quantity of sugar which thoroughly ripe grapes contain is considerable: it may be obtained in crystals by evaporating must to the consistence of syrup, and then setting the liquor aside for some months. The crystals of sugar are gradually formed. From a French pint of must the marquis de Bullion extracted half (French) of sugar, and one-tenth of an ounce of tartar. According to Proust the Muscadine grape contains about 30 per cent. of a peculiar species of sugar.

When must is put into the temperature of about 70°, the different ingredients begin to act upon each other, and what is called the vinous fermentation commences; and as this change takes place without adding any ferment, it is obvious that the requisite substance is present in the juice. This substance was separated and found by Fabroni to be analogous to the gluten of plants; and gluten being substitued for it, the fermentation succeeded. The formation of wine then is owing to the action of this glutinous matter on the saccharine substance of the juice, precisely as takes place in the fermentation of ale.

We have of late years been so much in the habit of importing and drinking foreign wines, and the folly of pride and parade seems so much to resist the introduction of domestic wines, that a proper attention has seldom been paid to the manufacture of the latter. Yet when such attention has been paid it has been attended with abundant success. The writer of this article has tasted a wine as clear, rich, and racy, produced from a free use of the best jar raisins, as the best foreign Malaga or Mountain. Yet the fresh juice of our domestic fruits may perhaps be employed still more advantageously; and the lighter foreign wines, as Bucellas, Tenerif, and Lisbon, may be and have been so accurately imitated by the employment of English grapes and currant juice, with a due proportion of sugar, and a proper attention upon the process of fermentation (which is a point of the utmost importance), as to deceive professed judges and importers.

It has, again, been enquired whether the exhilarating power or spirit contained in wine is pure alcohol, the same as that obtained by distillation. The more common opinion has hitherto been, that the alcohol obtained by the distillation of wine does not exist ready formed in the liquor, but is principally a product of the operation arising out of a new arrangement of its ultimate elements. There is a very excellent paper of Mr. Brande's, however, introduced into the Phil. Trans. for 1811, which has not only sufficiently proved the existence of such alcohol, but contains a useful table of its relative proportion in different wines, and, consequently, shows us their relative potency.

"The proofs," says Mr. Brande, "which have been brought forward in support of the common theory are chiefly founded on the researches of Fabroni, who attempted to separate alcohol by saturating the wine with dry subcarbonat of potash, but did not succeed, although by the same means he could detect very minute portions of alcohol, which had been purposely added.

"To obtain satisfactory results from many of the following experiments, it became necessary to employ wines to which little or no spirit had been added; for very considerable addition of brandy is made to most of the common wines, even before they are imported into this country. I therefore occasionally used Burgundy, Hermitage, Cote Roti, Champagne, Frontignac, and some other French wines; to which, when of the best quality, no spirit can be added, as even the smallest proportion impairs the delicacy of their flavour, and is, consequently, readily detected by those who are accustomed to taste them. For these, and for the opportunity of examining many of the scarce wines enumerated in the table annexed to this paper, I am indebted to the liberality of the right honourable sir Joseph Banks.

"Dr. Baillie, who took considerable interest in this investigation, was also kind enough to procure for me some Port wine, sent from Portugal for the express purpose of ascertaining how long it would remain sound, without any addition whatever of spirit having been made to it.

"Lastly, I employed raisin wine, which had been fermented without the addition of spirit.

"At a very early period of the present inquiry I ascertained by the following experiments, that the separation of the alcohol by means of subcarbonat of potash was interfered with, and often wholly prevented by some of the other ingredients of the wine.

"A pint of Port wine was put into a retort placed in a sand heat, and eight fluid ounces were distilled over, which, by saturation with dry subcarbonat of potash, afforded about three fluid ounces of tolerably pure spirit floating on the surface.

"I repeated this distillation precisely under the same circumstances, and mixed the distilled liquor with the residuum in the retort, conceiving, that, if the spirit were a product, I now should have no difficulty in separating it from the wine by the addition of subcarbonat of potash: but, although every precaution was taken, no spirit separated; a portion of the subcarbonat, in combination with some of the ingredients of the wine, formed a gelatinous compound, and thus prevented the appearance of the alcohol.

"It has been remarked by Fabroni, in a valuable Memoir, that one-hundredth part of alcohol purposely added to wine may be separated by subcarbonat of potash; but several repetitions of the experiment have not enabled me to verify this result: when however a considerable addition of alcohol has been made to the wine, a part of it may be again obtained by saturation with the subcarbonat. The necessary addition of spirit to Port wine, for this purpose, will be seen by the following experiments.

"Four ounces of dry and warm subcarbonat of potash were added to eight fluid ounces of Port wine, which was previously ascertained to afford by distillization 20 per cent. of alcohol (by measure) of the specific gravity of 0·825 at 60°.

"In twenty-four hours the mixture had separated into two distinct portions; at the bottom of the vessel was a strong solution of the subcarbonat, upon which floated a gelatinous substance, of such consistency as to prevent the escape of the liquor beneath when the vessel was inverted, and which appeared to contain the alcohol of the wine, with the principal part of the extract, tan, and colouring matter, some of the subcarbonat, and a portion of water; but as these experiments relate chiefly to the spirit contained in wine, the other ingredients were not minutely examined.

"To seven fluid ounces of the same wine, I added one fluid ounce of alcohol (specific gravity 0·825), and the same quantity of the subcarbonat of potash as in the last experiment; but after twenty-four hours had elapsed no distinct separation of the alcohol had taken place.

"When two fluid ounces of alcohol were added to six fluid ounces of the wine, and the mixture allowed to remain undisturbed for the same length of time as in the former experiments, a stratum of impure alcohol, of about a quarter of an inch in thickness, separated on the surface.

"The addition of three fluid ounces of the alcohol to five fluid ounces of the wine, formed a mixture from which a quantity of spirit readily separated on the surface, when the subcarbonat was added, and the gelatinous compound sunk nearly to the bottom of the vessel, there being below it a strong solution of the subcarbonat.

"When in these experiments Madeira and Sherry were employed instead of Port wine, the results were nearly similar.

"It was suggested to me by Dr. Wollaston, that, if the wine were previously deprived of its acid, the subsequent separation of the alcohol, by means of potash, might be less interfered with. I therefore added, to eight fluid ounces of Port wine, a sufficient quantity of carbonat of lime to saturate the acid, and separated the insoluble compounds produced by means of a filter. The addition of potash rendered the filtered liquor turbid, some soluble salt of lime, probably the malate, having passed through the paper; but the separation of alcohol was as indistinct as in the experiments just related.

"It is commonly stated that the addition of lime water to wine not only forms insoluble compounds with the acids, but also with the colouring matter, and that these ingredients may be thus separated without heat; but on repeating these experiments they did not succeed, nor could I devise any mode of perfectly separating the acids, and the extractive and colouring matter (excepting by distillation), which did not interfere with the alcohol.

"If the spirit afforded by the distillation of wine were a product, and not an educt, I conceived that by performing the distillation at different temperatures, different proportions of spirit should be obtained.

"The following are the experiments made to ascertain this point.

"Four ounces of dried muriat of lime were dissolved in eight fluid ounces of the Port wine employed in the former experiments: by this addition, the boiling point of the wine, which was 190° Fahrenheit, was raised to 200°. The solution was put into a retort placed in a sand heat, and was kept boiling until four fluid ounces had passed over into the receiver, the specific gravity of which was 0·96316 at 60° Fahrenheit.

"The experiment was repeated with eight fluid ounces of the wine without any addition, and the same quantity was distilled over, as in the last experiment: its specific gravity at 60° Fahrenheit, was 0·96311.

"Eight fluid ounces of the wine were distilled in a water bath; when four fluid ounces had passed over, the heat was withdrawn. The specific gravity of the liquor in the receiver was 0·96320 at 60° Fahrenheit.

"The same quantity of the wine, as in the last experiment, was distilled at a temperature not exceeding 180° Fahrenheit. This temperature was kept up from four to five hours, for five successive days, at the end of which period four ounces having passed into the receiver, its specific gravity at 60° was ascertained to be 0 96314.

"It may be concluded, from these results, that the proportion of alcohol is not influenced by the temperature at which wine is distilled, the variation of the specific gravities in the above experiments being even less than might have been expected, when the delicacy of the operation by which they are ascertained is considered.

"I have repeatedly endeavoured to separate the spirit from wine by subjecting it to low temperatures, with a view to freeze the aqueous part; but when the temperature is sufficiently reduced the whole of the wine forms a spongy cake of ice.

"In a mixture of one fluid ounce of alcohol with three of water, I dissolved the residuary matter, afforded by evaporating four fluid ounces of Port wine, and attempted to separate the alcohol from this artificial mixture by freezing; but a spongy cake of ice was produced as in the last experiment.

"When the temperature is more gradually reduced, and when large quantities of wine are operated upon, the separation of alcohol succeeds to a certain extent, and the portion which first freezes is principally, if not entirely, water; hence in some countries this method is employed to render wine strong.

"Having ascertained that alcohol exists in wine ready formed, and that it is not produced during distillation, I employed this process to discover the relative proportion of alcohol contained in different wines.

"In the following experiments the wine was distilled in glass retorts, and the escape of any uncondensed vapour was prevented by employing sufficiently capacious receivers, well luted, and kept cold during the experiment.

"By a proper management of the heat towards the end of the process I could distil over nearly the whole of the wine without burning the residuary matter: thus, from a pint of Port wine, of Madeira, of Sherry, &c. I distilled off from fifteen fluid ounces, to fifteen fluid ounces and a half; and from the same quantity of Malaga, and other wines containing much saccharine matter, I could readily distil from fourteen to fifteen fluid ounces.

"In order to ascertain the proportion of alcohol with precision, pure water was added to the distilled wine, so as nearly to make up the original measure of the wine, a very small allowance being made for the space occupied by the solid ingredients of the wine, and for the inevitable loss during the experiments: thus, five fluid drachms and a half of distilled water were added to 15 fluid ounces and a quarter of the liquor procured by the distillation of a pint of Port wine, and in other cases nearly the same proportions were observed. This mixture of the distilled wine and water was immediately transferred into a well stopped phial, and having been thoroughly agitated was allowed to remain at rest for some hours; its specific gravity (at the temperature of 60° Fahrenheit) was then very carefully ascertained, by weighing it in a bottle holding exactly one thousand grains of distilled water at the above temperature, and the proportion of alcohol per cent. by measure, was estimated by a reference to Mr. Gilpin's tables, the specific gravity of the standard alcohol being 0·82500 at 60°.

"As the most convenient mode of exhibiting the results of these numerous experiments, I have thrown them into the form of a table; in the first column the wine is specified; the second contains its specific gravity after distillation, as above described; and the third exhibits the proportion of the pure spirit, which every hundred parts of the wine contain. I have also inserted porter, ale, cider, brandy, and some other spirituous liquors, for the convenience of comparing their strength with that of the wine.

Wine.	Specific gravity after distillation.	Proportion of alcohol, per cent. by measure.
Port	0·97616	21·40
Ditto	0·97532	22·30
Ditto	0·97430	23·39
Ditto	0·97400	23·71
Ditto	0·97346	24·29
Ditto	0·97200	25·83
Madeira	0·97810	19·34
Ditto	0·97616	21·40
Ditto	0·97380	23·93
Ditto	0·97333	24·42
Sherry	0·97913	18·25
Ditto	0·97862	18·79
Ditto	0·97765	19·81
Sherry	0·97700	19·83
Claret	0·98440	12·91
Ditto	0·98320	14·08
Ditto	0·98092	16·32
Calcavella	0·97920	18·10
Lisbon	0·97846	18·94
Malaga	0·98000	17·26
Bucellas	0·97890	18·49
Red Madeira	0·97899	18·40
Malmsey Madeira	0·98090	16·40
Marsala	0·97196	25·87
Ditto	0·98000	17·26
Red Champagne	0·98608	11·30
White Champagne	0·98450	12·80
Burgundy	0·98300	14·53
Ditto	0·98540	11·95
White Hermitage	0·97990	17·43
Red Hermitage	0·98495	12·32
Hock	0·98290	14·37
Ditto	0·98873	8·88
Vin de Grave	0·98450	12·80
Frontignac	0·98452	12·79
Cote Roti	0·98495	12·32
Rousillon	0·98005	17·26
Cape Madeira	0·97924	18·11
Cape Muschat	0·97913	18·25
Constantia	0·97770	19·75
Tent	0·98399	13·30
Sheeraz	0·98176	15·52
Syracuse	0·98200	15·28
Nice	0·98263	14·63
Tokay	0·98760	9·88
Raisin Wine	0·97205	25·77
Grape Wine	0·97925	18·11
Currant Wine	0·97696	20·55
Gooseberry Wine	0·98550	11·84
Elder Wine	0·98760	9·87
Cyder	0·98760	9·87
Perry	0·98760	9·87
Brown Stout	0·99116	6·80
Ale	0·98873	8·88
Brandy	0·93544	53·39
Rum	0·93494	53·68
Hollands	0·93855	51·60"

Wines, therefore, like distilled spirits, contain a certain quantity of alcohol in a free state. They also contain a certain portion of acid, tartar, extract, aroma and colouring matter.

The acid, which has usually been regarded as acetous, is rather the malic mixed with a little citric, both of which are convertible into vinegar by spontaneous decomposition. The wines that contain the greatest portion of these acids are those of wet and cold climates, where the grape-juice or must contains but a small quantity of sugar. These wines produce by distillation the worst brandies.

The tartar exists partly in the must, but in a much larger quantity in the wine, in consequence of fermentation. We have already described it under the article TARTAR.

The extractive matter is contained chiefly in the must, and is afterwards found partly in the lees, though a part still exists in the wine, and may be produced by evaporation. Its quantity is diminished by age.

The aroma or essential smell is peculiar to the peculiar kind of wine; it has never been exhibited in the form of essential oil, or condensed in any other form.

The colouring material is derived chiefly from the must, which gives forth this material when the fruit is closely pressed. It may be separated from the wine by lime-water, and by hot, well-burnt charcoal, in pretty fine powder.

The qualities of wines, however, depend not only upon the difference of the grapes, as containing more or less of saccharine juice and the acid matter which accompanies it, but also upon circumstances attending the process of fermentation. New wines are liable to a strong degree of acescency when taken into the stomach, and thereby occasion much flatulency and eructations of acid matter; heart-burn and violent pains in the stomach from spasms are also often produced; and the acid matter, by passing into the intestines and mixing with the bile, is apt to occasion colics or excite diarrhœas. Sweet wines are likewise more disposed to become acescent in the stomach than others: but as the quantity of alcohol which they contain is more considerable than appears sensibly to the taste, their acescency is thereby in a great measure counteracted. Red Port and most of the red wines have an adstringent quality, by which they strengthen the stomach, and prove useful in restraining immoderate evacutions; on the contrary, those which are of an acid nature, as Rhenish, pass freely by the kidneys, and gently loosen the belly. But this, and perhaps all the thin or weak wines, though of an agreeable flavour, yet as containing little alcohol, are readily disposed to become acid in the stomach, and thereby to aggravate all arthritic and calculous complaints, as well as to produce the effects of new wine. The general effects of wine are, to stimulate the stomach, exhilarate the spirits, warm the habit, quicken the circulation, promote perspiration, and, in large quantities, to prove intoxicating, and powerfully sedative. In many disorders wine is universally admitted to be of important service, and especially in fevers of the typhus kind, or of a putrid tendency; in which it is found to raise the pulse, support the strength, promote a diaphoresis, and to resist putrefaction; and in many cases it proves of more immediate advantage than the Peruvian bark. Delirium, which is the consequence of excessive irritability, and a defective state of nervous energy, is often entirely removed by the free use of wine. It is also a well-founded observation, that those who indulge in the use of wine are less subject to fevers of the malignant and intermittent kind. In the putrid sore throat, in the small-pox when attended with great debility and symptoms of putridity, in gangrenes, and in the plague, wine is to be considered as a principal remedy; and in almost all cases of languor, and of great prostration of strength, wine is experienced to be a more grateful and efficacious cordial than can be furnished from the whole class of aromatics.

Method of discovering whether wine has been adulterated with any metals prejudicial to the health.

The property which liver of sulpur, the alkali sulphuratum, and hepatic air, or sulphurated hydrogen, possess of precipitating lead in a black form, has been long ago made public; and this property has been employed to determine the quality of wines by means of the liquor probatorius Wirtembergensis, or Wirtemberg proving liquor. But in trying wines supposed to have been adulterated, this proof does more harm than service, because it precipitates iron of the same colour as the pernicious lead. Many wine-merchants of the greatest respectability rendered by these means suspected, have been ruined. There was wanting then a re-agent, which should discover in wine those metals only which are prejudicial to the health of man.

The following liquor precipitates lead and copper in a black form, and arsenic in an orange colour, &c. but does not precipitate iron. The last, which is not noxious, and rather salutary to the constitution, frequently gets into wines by accident.

Method of preparing the proving liquor.

Mix equal parts of oyster shells and crude sulphur in a fine powder, and put the mixture into a crucible; heat it in a wind furnace, and increase the fire suddenly, so as to bring the crucible to a white heat, for the space of fifteen minutes; pulverize the mass, when it is cold, and preserve it in a bottle closely stopped. To prepare the liquor, put 120 grains of this powder and 120 grains of cream of tartar (acidulous tartrit of potash) into a strong bottle, fill the bottle with common water, which boil for an hour, and then let it cool; close the bottle immediately and shake it for some time; after it has remained at rest to settle, decant the pure liquor, and pour it into small phials, capable of holding about an ounce each, first putting into each of them twenty drops of muriatic acid. They must be stopped very closely with a piece of wax, in which there is a small mixture of turpentine. One part of this liquor mixed with three parts of suspected wine will discover by a very sensible black precipitate the least traces of lead, copper, &c. but will produce no effect upon iron if it contain any of that metal. When the precipitate has fallen down it may still be discovered whether the wine contains iron, by saturating the decanted liquor with a little salt of tartar (tartareous acidulum of potash), by which the liquor will immediately become black. Pure wines remain clear and bright after this liquor has been added to them.

WING. *s.* (ᵹehƿınᵹ, Saxon; *winge*, Dan.) 1. The limb of a bird by which it flies (*Sid.*). 2. A fan, to winnow (*Tusser*). 3. Flight; passage by the wing (*Shakspeare*). 4. The motive of flight (*Shakspeare*). 5. The side bodies of an army (*Knolles*). 6. Any side-piece (*Mortimer*).

To WING. *v. a.* (from the noun.) 1. To furnish with wings; to enable to fly (*Pope*). 2. To supply with side bodies (*Shakspeare*).

To WING. *v. n.* 1. To pass by flight (*Shakspeare*). 2. To exert the power of flying (*Prior*).

WI′NGED. *a.* (from *wing.*) 1. Furnished with wings; flying (*Milton*). 2. Swift; rapid (*Shakspeare*).

WINGED PETIOLE, in botany. Alatus. Having a thin membrane or border on each side; or, dilated on the sides: as in orange. Winged leaf. See PINNATE.

WINGED PEA. See OCHRUS.

WI′NGSHELL. *s.* (*wing* and *shell.*) The shell that covers the wing of insects (*Grew*).

WI′NGY. *a.* (from *wing.*) Having wings; resembling wings (*Addison*).

To WINK. *v. n.* (ƿıncꞇan, Saxon; *wineken*, Dutch.) 1. To shut the eyes (*Tillotson*). 2.

To hint, or direct, by the motion of the eyelids (*Swift*). 3. To close, and exclude the light (*Dryden*). 4. To connive; to seem not to see; to tolerate (*Roscommon*). 5. To be dim (*Dryden*).

WINK. *s.* (from the verb.) 1. Act of closing the eye (*Temple*). 2. A hint given by motion of the eye (*Sidney*).

WI'NKER. *s.* One who winks.

WI'NKINGLY. *ad.* (from *winking.*) With the eye almost closed (*Peacham*).

WI'NNER. *s.* (from *win.*) One who wins.

WI'NNING. *participial a.* (from *win.*) Attractive; charming (*Milton*).

WI'NNING. *s.* (from *win.*) The sum won (*Addison*).

WINNIPEG, a lake of Upper Canada, N.W. of Lake Superior. It is 240 miles long and from 50 to 100 broad, and exhibits a body of water next in size to Lake Superior. It receives the waters of several small lakes in every direction, and contains a number of small islands. The lands on its banks produce vast quantities of wild rice, and the sugar-tree in great plenty.

To WI'NNOW, *v. a.* (pınꝺpıan, Saxon.) 1. To separate by means of the wind; to part the grain from the chaff (*Dryden*). 2. To fan; to beat as with wings (*Milton*). 3. To sift; to examine (*Dryden*). 4. To separate; to part (*Shakspeare*).

To WI'NNOW. *v. n.* To part corn from chaff (*Ecclus*).

WI'NNOWER. *s* (from *winnow.*) He who winnows.

WINNSBOROUGH, a town of South Carolina, chief of Fairfield county, with a seminary called Mount Zion College. It stands on Wateree creek, which flows into the river of that name, 30 miles N. by W. of Columbia.

WINSCHOTEN, a fortified town of Holland, in Groningen. Here, in 1568, was fought the first battle between the revolted Dutch and the Spaniards, who were defeated by Lewis, brother to the prince of Orange. It is six miles S. of Dollart bay, and 19 E.S.E. of Groningen.

WINSEN, a town of Lower Saxony, in the duchy of Luneburg, with a castle, seated on the Luhe, near its confluence with the Ilmenau, 15 miles N.W. of Luneburg.—Another, seated on the Aller, six miles below Zell, and 47 S.S.W. of Luneburg.

WINSLOW (James Benignus), a Danish anatomist, born in 1669: he studied under Duverney, at Paris, where he was persuaded to adopt the catholic faith; and Bossuet, bishop of Meaux, who baptised him, gave him his own name at his confirmation. He was a few years afterwards appointed physician of the faculty of Paris, demonstrator in the Royal Gardens, and member of the Academy of Sciences of Paris. He died in that city in 1760, and left two great works behind him, his Anatomy, and the Uncertainty of the Signs of Death, both which have been translated into English.

WINSLOW, a town in Buckinghamshire, with a market on Tuesday, seven miles N.W. of Aylesbury, and 49 W.N.W. of London.

WINTER, one of the four seasons or quarters of the year.

Winter properly commences on the day when the sun's distance from the zenith of the place is the greatest, or when his declination is the greatest on the contrary side of the equator; and it ends on the day when that distance is a mean between the greatest and least, or when he next crosses the equinoctial.

To WI'NTER. *v. n.* (from the noun.) To pass the winter (*Isaiah*).

To WI'NTER. *v. a.* To feed or manage in the winter (*Temple*).

WINTER BARK. See WINTERANUS CORTEX and WINTERA.

WINTER BERRY. See PRINOS.

WINTER BLOOM. See AZALEA.

WINTER CHERRY. See PHYSALIS and SOLANUM.

WINTER SAVORY. See SATUREIA.

WINTER SLEEP. See SLEEP.

WINTERA, in botany, a genus of the class polyandria, order tetragynia. Calyx three-lobed: petals six or twelve: germs clavate; berries four or eight, obovate. Three species; natives of South America, or Polynesia. Of these the following is well worthy of notice.

W. aromatica. Peduncles axillary, aggregate, about three-flowered: leaves oval, obtuse, entire, scattered. A lofty evergreen forest-tree of Terra del Fuego, rising fifty feet high; flowers red in umbelled clusters, and terminal, succeeded by roundish berries. The bark is employed medicinally under the names WINTERANUS CORTEX, and CANELLA ALBA. See these articles.

WINTERANUS CORTEX, Winteranus cortex magellanicus. The bark of the Wintera aromatica pedunculis aggregatis terminalibus, pistillis quatuor: it is very much allied in its properties to the canella alba. See CANELLA ALBA.

WINTERANUS SPURIUS. See CANELLA ALBA.

WI'NTERBEATEN. *a.* (*winter* and *beat.*) Harassed by severe weather (*Spenser*).

WINTERBURG, a town of France, in the department of Rhine and Moselle, lately of Germany, in the county of Sponheim, 10 miles W.N.W. of Creutznach, and 12 S.S.E. of Simmern.

WINTERINGHAM, a town in Lincolnshire, governed by a mayor, but has no market; seated near the Humber, 33 miles N. of Lincoln.

WI'NTERLY. *a.* (*winter* and *like.*) Such as is suitable to winter; of a wintry kind (*Shakspeare*).

WI'NTRY. *a.* (from *winter.*) Brumal; hyemal; suitable to winter (*Dryden*).

WI'NY. *a.* (from *wine.*) Having the taste or qualities of wine (*Bacon*).

To WIPE. *v. a.* (pıpan, Saxon.) 1. To cleanse by rubbing with something soft (*Milton*). 2. To take away by tersion (*Decay of*

Piety). 3. To strike off gently (*Addison*). 4. To clear away (*Shakspeare*). 5. To cheat; to defraud (*Spenser*). 6. *To* Wipe *out*. To efface (*Locke*).

Wipe. *s.* (from the verb.) 1. Act of cleansing. 2. A blow; a stroke; a jeer; a gibe; a sarcasm (*Swift*). 3. (*vanellus*.) A bird (*Ainsworth*).

WI'PER. *s.* (from *wipe*.) An instrument or person by which any thing is wiped (*Ben Jonson*).

WIRE. *s.* (*virer*, French, to draw round.) Metal drawn into slender threads (*Milton*).

To WI'REDRAW. *v. a.* (*wire* and *draw*.) 1. To spin into wire. 2. To draw out into length (*Arbuthnot*). 3. To draw by art or violence (*Dryden*).

WI'REDRAWER. *s.* (*wire* and *draw*.) One who spins wire (*Locke*).

WIREDRAWING, the art of drawing out long bars of metal, by pulling it through holes in a plate of steel, or other fit metallic compound. In order that a wire may be drawn, it is requisite that the metal should have considerable tenacity. Gold, silver, iron, steel, copper, and their compounds, are most commonly used in the arts. The process is of considerable simplicity. A number of holes, progressively smaller and smaller, are made in a plate of steel, and the pointed end of a bar of metal being passed through, one of them is forcibly drawn by strong pinchers, so as to elongate it by the pressure arising from the reaction of the greased hole: this is the wire; and it is again passed in like manner through another hole a little smaller; and, by continuing the process, the wire has its length increased, and its diameter diminished, to a very great degree. The largest wire may be nearly an inch in diameter, and the smallest we have seen was about one-thousandth part of an inch; but we are assured, that silver wire has been made one fifteen-hundredth of an inch in diameter. The size of these small wires may be ascertained from the weight of a known measure of length, and the specific gravity of the metal. Or, less correctly, the wire may be wound round a pin, and the number of turns counted which make a given length.

Wires are drawn square, and of other figures in their sector. In particular they are drawn grooved, so that any small part will form the pinion of a clock or watch work.

As the violent action of the drawing plate renders the wire hard and brittle, it is necessary to anneal it several times during the course of drawing. Very small holes are made by hammering up the larger, and the point, in very thin wire, is made by rolling or crushing the end by a smooth burnishing tool upon a polished plate.

It is said that soft steel is as good for the wire-drawer's plate as that which is hard, or as the compound material which comes from France in wire plates, and is highly esteemed. This has not been yet chemically examined.

WIRE OF LAPLAND. The inhabitants of Lapland have a sort of shining slender substance in use among them on several occasions, which is much of the thickness and appearance of our silver wire, and is therefore called, by those who do not examine its structure or substance, Lapland wire. It is made of the sinews of the rein-deer, which being carefully separated in the eating, are by the women, after soaking in water, and beating, spun into a sort of thread, of admirable fineness, and strength, when wrought to the smallest filaments; but when larger, is very strong, and fit for the purposes of strength and force. Their wire, as it is called, is made of the finest of these threads, covered with tin. The women do this business, and the way they take is to melt a piece of tin, and placing at the edge of it a horn with a hole through it, they draw these sinewy threads, covered with the tin, through the hole, which prevents their coming out too thick covered. This drawing is performed with their teeth: and there is a small piece of bone placed at the top of the hole, where the wire is made flat, so that we always find it rounded on all sides but one, where it is flat. This wire they use in embroidering their clothes as we do gold and silver; they often sell it to strangers, under the notion of its having certain magical virtues.

WIRKSWORTH, a town in Derbyshire, with a market on Tuesday. Lead ore is found here in great abundance, and it is the greatest mart for lead in England. Millstones and grindstones are also found in the neighbourhood, as well as veins of antimony. It is seated in a valley, near the source of the Ecclesborn, 13 miles N. by W. of Derby, and 140 N.N.W. of London.

WIRTEMBURG, or Wurtenburg, a sovereign duchy of Germany, in the circle of Suabia; bounded on the N. by the palatinate of the Rhine and Franconia, E. and S. by several provinces of Suabia, and W. by the Black Forest and the marquisate of Baden. It is 65 miles in length, and nearly as much in breadth; and is one of the most populous and fertile countries in Germany, though there are many mountains and woods. It produces plenty of pasture, corn, fruit, and a great deal of Neckar wine, so called from the river Neckar, which runs through the duchy. There are also mines and salt springs, and much game. Stutgard is the capital.

To WIS. *v. a.* pret. and part. pass. *wist*. (*wissen*, German; *wysen*, Dutch.) To think; to imagine: obsolete (*Ascham*).

WISBADEN, a town of Germany, in the principality of Nassau, capital of a lordship of the same name, subject to the prince of Nassau-Saarbruck. It is famous for its warm baths, which were known to the ancient Romans, and is five miles N. of Mentz. Lon. 8. 20 E. Lat. 49. 56 N.

WISBEACH, a town in Cambridgeshire, with a market on Saturday. It is seated in the isle of Ely, between two rivers, and possesses a considerable trade in the export of corn, and of oil pressed from seeds at mills in its neighbourhood. Barges only can come up its river, large vessels stopping six miles below. It is 18 miles N. of Ely, and 89 N. by E. of London. Lon. 0. 6 E. Lat. 52. 38 N.

WISBY, a seaport of Sweden, in the isle of Gothland, with a castle. It is seated on the side of a rock, on the Baltic, 88 miles S.E. of Stockholm. Lon. 18. 41 E. Lat. 57. 36 N.

WISCASSET, a seaport of the district of Maine, in Lincoln county, which has a considerable trade. The judicial courts for the county are held here and at Harrington alternately. It is seated on the Sheepscut, near the sea, 56 miles N.E. of Portland. Lon. 69. 45 W. Lat. 43. 57 N.

WI'SDOM. *s.* (ƿiſdom, Saxon.) 1. Sapience; the power of judging rightly; the knowledge of things (*Hooker*). 2. Prudence; skill in affairs; judicious conduct (*Shakspeare*).

WISDOM OF SOLOMON, one of the books of the Apocrypha. It abounds with Platonic language, and was probably written after the Chaballistic philosophy was introduced among the Jews.

WISE. *a.* (ƿiſ, Saxon; *wiis*, Dutch.) 1. Sapient; judging rightly; having much knowledge (*Addison*). 2. Judicious; prudent (*Romans*). 3. Skilful; dexterous (*Tillotson*). 4. Skilled in hidden arts (*Shakspeare*). 5. Grave; becoming a *wise* man (*Milton*).

WISE. *s.* (ƿiſe, Saxon; *wyse*, Dutch.) Manner; way of being or acting. This word, in the modern dialect, is often corrupted into *ways* (*Sidney*).

WI'SEACRE. *s.* (*wiseggher*, Dutch.) 1. A wise or sententious man: obsolete. 2. A fool; a dunce (*Addison*).

WI'SELY. *ad.* (from *wise.*) Judiciously; prudently (*Rogers*).

WI'SENESS. *s.* (from *wise.*) Wisdom; sapience: obsolete (*Spenser*).

To WISH. *v. n.* (ƿiſcian, Saxon.) 1. To have strong desire; to long (*Arbuthnot*). 2. To be disposed or inclined (*Addison*).

To WISH. *v. a.* 1. To desire; to long for (*Sidney*). 2. To recommend by wishing (*Shakspeare*). 3. To imprecate (*Shakspeare*). 4. To ask (*Clarendon*).

WISH. *s.* (from the verb.) 1. Longing desire (*South*). 2. Thing desired (*Milton*). 3. Desire expressed (*Pope*).

"A wish," says Dr. Cogan, "is an inactive desire. It is the result of that longing after happiness so natural to man, in cases where no expectations can be formed, no efforts can be made. It is the breathing after something desirable, where the means to obtain it are not in our power; or where the opportunity may be for ever lost. We may wish for impossibilities, which cannot be the objects of our active desires. The beggar may wish to be a king, who cannot seriously desire it. We may wish that we could fly, even without wings, and pay a visit to some of the planets; though we know that the wish will be in vain."

WI'SHEDLY. *ad.* (from *wished.*) According to desire: not used (*Knolles*).

WI'SHER. *s.* (from *wish.*) 1. One who longs. 2. One who expresses wishes (*Shaks.*).

WI'SHFUL. *a.* (from *wish* and *full.*) 1. Longing; showing desire (*Shakspeare*). 2. Desirable; exciting wishes (*Chapman*).

WI'SHFULLY. *ad.* (from *wishful.*) Earnestly; with longing.

WI'SKET. *s.* A basket (*Ainsworth*).

WISMAR, a strong seaport of Germany, in the duchy of Mecklenburg, seated at the bottom of a bay of the Baltic, 36 miles E. of Lubec, and 66 W. by S. of Stralsund. Lon. 11. 44 E. Lat. 53. 54 N.

WISP. *s.* (*wisp*, Swedish and old Dutch.) A small bundle, as of hay or straw (*Bacon*).

WIST. The preterit and participle of *wis*.

WI'STFUL. *a.* Attentive; earnest; full of thought (*Gay*).

WI'STFULLY. *ad.* (from *wistful.*) Attentively; earnestly (*Hudibras*).

WI'STLY. *ad.* (from *wis.*) Attentively; earnestly (*Shakspeare*).

WISTON, a corporate town in Pembrokeshire, with a market on Wednesday. It is governed by a mayor, and was formerly strengthened with a castle, which is now a gentleman's seat. It is 10 miles N. of Pembroke, and 235 W.N.W. of London. Lon. 4. 52 W. Lat. 51. 53 N.

To WIT. *v. n.* (ƿitan, Saxon.) To know. It is now only used in the phrase *to wit*, that is to say (*Shakspeare*).

WIT. *s.* (ȝeƿit, Saxon, from ƿitan, to know.) 1. The powers of the mind; the mental faculties; the intellects (*Shakspeare*). 2. Imagination; quickness of fancy (*Locke*). 3. Sentiments produced by quickness of fancy, or by genius (*Sprat*). 4. A man of fancy (*Dryden*). 5. A man of genius (*Pope*). 6. Sense; judgment (*Dryden*). 7. Faculty of the mind (*Shakspeare*). 8. (in the plural.) Sound mind (*Tillotson*). 9. Contrivance; stratagem; power of expedients; invention; ingenuity (*Milton*).

WIT, is a quality of certain thoughts and expressions, much easier perceived than defined. According to Mr. Locke, wit lies in the assemblage of ideas, and putting those together with quickness and variety, wherein can be found any resemblance or congruity, thereby to make up pleasant pictures and agreeable visions to the fancy. Mr. Addison limited this definition considerably, by observing, that every resemblance of ideas does not constitute wit, but those only which produce delight and surprise. Mr. Pope defined wit to be a quick conception and an easy delivery: while, according to another writer, it consists in an assimilation of distant ideas. An ingenious writer in the Quarterly Review describes wit as "judgment at play," and distinguishes it from "the fool's or the fop's imitation of her sport."

The word wit originally signified wisdom. A witte was anciently a wise man: the wittenagemot, or Saxon parliament, an assemblage of wise men. So late as the reign of Elisabeth, a man of pregnant wit, of great wit, was a man of vast judgment. We still say, in his wits, out of his wits, for in or out of sound mind. The word, however, is now applied in a more limited sense.

Without attempting to expose the inaccuracy of the definitions above mentioned, or hazarding a definition of our own where so many eminent men have failed, we shall endeavour to show in what true wit consists.

It is evident that wit excites in the mind an agreeable surprise, and that this is owing entirely to the strange assemblage of related ideas presented to the mind. This end is effected, 1. By debasing things pompous or seemingly grave; 2. By aggrandising things little or frivolous; 3. By setting ordinary objects in a particular and uncommon point of view, by means not only remote but apparently contrary. Of so much consequence are surprise and novelty, that nothing is more tasteless, and sometimes disgusting, than a joke that has become stale by frequent repetition. For the same reason, even a pun or happy allusion will appear excellent when thrown out extempore in conversation, which would be deemed execrable in print. In like manner, a witty repartee is infinitely more pleasing than a witty attack: for though, in both cases, the thing may be equally new to the reader or hearer, the effect on him is greatly injured, when there is access to suppose that it may be the slow production of study and premeditation.

Dr. Trusler says, that wit relates to the matter, humour to the manner; that our old comedies abounded with wit, and our old actors with humour; that humour always excites laughter, but wit does not; that a fellow of humour will set a whole company in a roar, but that there is a smartness in wit which cuts while it pleases. Wit, he adds, always implies sense and abilities, while humour does not; humour is chiefly relished by the vulgar, but education is requisite to comprehend wit.

This is a fair record of the popular acceptation of the words, according to which, humour is a low and local, but wit a high and cosmopolite accomplishment. What diverts the clown disgusts the gentleman; and the same things which excite a laugh at home, excite a sneer abroad. Humour and wit are both addressed to the comic passion; but humour aims at the risibility, and wit at the admiration. Humour is the seasoning of farce, and wit of comedy. Moliere's Medecin malgré lui is a piece of humour too coarse for a polished audience; his Misanthrope is a piece of wit too refined to be interesting among the multitude. Humour seems to exclude and wit to include the idea of thought, study, and difficulty conquered; yet both are exerted with apparent instantaneity. Humour judges by instinct; wit by comparison.

How strong a disposition men of humour have for attending to ideas physically nasty, may be inferred from the writings of Swift. How much more frequently the wit is evolved in the perfumed classes of society, may be deduced from the turn of Pope. Shift the places of these two men—fling Pope among barbarians, and station Swift in the metropolis, the author of the Dunciad would have given us a wedding-night; and the author of Gulliver would have hazarded nothing coarser than the Memoirs of Scriblerus.

The most comprehensive and lively account of these entertaining qualities with which we have yet met is in Dr. Barrow's Sermons, vol. ii. Serm. 14.: as it is not so generally known as might be wished, we here present it to our readers.

"It may be demanded (says this learned and eloquent preacher), what the thing we speak of is? or what this facetiousness (or wit, as he calls it before) doth import? To which question I might reply, as Democritus did to him that asked the definition of a man, 'Tis that which we all see and know.' Any one better apprehends what it is by acquaintance, than I can inform him by description. It is, indeed, a thing so versatile and multiform, appearing in so many shapes, so many postures, so many garbs, so variously apprehended by several eyes and judgments, that it seemeth no less hard to settle a clear and certain notion thereof, than to make a portrait of Proteus, or to define the figure of the fleeting air. Sometimes it lieth in pat allusion to a known story, or in a seasonable application of a trivial saying, or in forging an apposite tale: sometimes it playeth in words and phrases, taking advantage from the ambiguity of their sense, or the affinity of their sound: sometimes it is wrapped in a dress of humorous expression, sometimes it lurketh under an odd similitude: sometimes it is lodged in a sly question, in a smart answer, in a quirkish reason, in a shrewd intimation, in cunningly diverting or cleverly retorting an objection: sometimes it is couched in a bold scheme of speech, in a tart irony, in a lusty hyperbole, in a startling metaphor, in a plausible reconciling of contradictions, or in acute nonsense: sometimes a scenical representation of persons or things, a counterfeit speech, a mimical look or gesture, passeth for it: sometimes an affected simplicity, sometimes a presumptuous bluntness giveth it being: sometimes it riseth only from a lucky hitting upon what is strange; sometimes from a crafty wresting obvious matter to the purpose. Often it consisteth in one knows not what, and springeth up one can hardly tell how. Its ways are unaccountable and inexplicable, being answerable to the numberless rovings of fancy, and windings of language. It is, in short, a manner of speaking out of the simple and plain way (such as reason teacheth and proveth things by), which by a pretty surprising uncouthness in conceit or expression, doth affect and amuse the fancy, stirring on it some wonder, and breeding some delight thereto. It raiseth admiration, as signifying a nimble sagacity of apprehension, a special felicity of invention, a vivacity of spirit, and reach of wit more than vulgar; it seeming to argue a rare quickness of parts, that one can fetch in remote conceits applicable; a notable skill, that he can dextrously accommodate them to the purpose before him; together with a lively briskness of humour, not apt to damp those sportful flashes of imagination. (Whence in Aristotle such persons are termed επιδεξιοι, dextrous men, and ευϛροφοι, men of facile or versatile manners, who can easily turn themselves to all things, or turn all things to themselves.) It also procureth delight, by gratifying curiosity with its rareness, or semblance of difficulty: as monsters, not for their beauty, but their rarity; as juggling tricks, not for their use, but their abstruseness, are beheld with pleasure:) by diverting the mind from its road of serious thoughts; by instilling gaiety and airiness of spirit, by provoking to such dispositions of spirit in way of emulation or complaisance; and by seasoning matters, otherwise distasteful or insipid, with an unusual and thence grateful tang."

Satirical wit is well described in the celebrated lines—

> " True wit is like the polished stone
> Dug from Golconda's mine,
> Which boasts two different powers in one;
> To *cut* as well as *shine*."

Wit (John de), a celebrated pensioner of Holland, and one of the greatest politicians of his time, was the son of Jacob de Wit, burgomaster of Dort, and was born in 1625. He became well skilled in civil law, politics, mathematics, and other sciences; and wrote a treatise on the Elements of Curved Lines, published by Francis Schooten. Having taken his degree of doctor of law, he travelled into foreign courts, where he became esteemed for his genius and prudence. At his return to his native country, in 1650, he became pensionary of Dort, then counsellor-pensionary of Holland and West Friesland, intendant and register of the fiefs, and keeper of the great seal. He was thus at the head of affairs in Holland; but his opposition to the re-establishment of the office of stadtholder, which he thought a violation of the freedom and independence of the republic, cost him his life, when the prince of Orange's party prevailed. He and his brother Cornelius were assassinated by the populace at the Hague in 1674, aged 47.

WITCH. *s.* (picce, Saxon.) 1. A woman given to unlawful arts (*Bacon*). 2. A winding sinuous bank (*Spenser*).

To Witch. *v. a.* (from the noun.) To bewitch; to enchant (*Shakspeare*).

Witch, in the higher geometry, a curve defined by the equation

$$y = \frac{a\sqrt{ax - xx}.}{x}$$

A point in the curve may be thus obtained: the semicircle ADC on the diameter AC being given, the point M in the curve is such that drawing MB perpendicular to the diameter AC (B being in AC) to cut the circle in D, it may be AB : BD : : AC : BM. This curve has two opposite, equal, and infinite branches, to which a line drawn through A perpendicular to the diameter AC of the circle is an asymptote.

Witch of Endor, in biblical history, a woman who had a familiar spirit, and who was employed by Saul to consult the deceased Samuel concerning the issue of his contest with the Philistines. See 1 Sam. xxviii.

The explication of this part of sacred history has greatly perplexed commentators and critics. Some have given a literal interpretation of this history, and supposed that Samuel actually appeared to Saul. But to this opinion it has been justly objected, that it is repugnant to the order of the natural world, and to the doctrines of revelation respecting the state of the dead It cannot be supposed consistent with a just reverence of God to believe, that he has subjected the souls of the departed (not excepting those of the most eminent saints and prophets) to be remanded back from their distinct abodes, by the practice of the most execrable rites and at the call of some of the vilest mortals, and compelled to reveal what he has seen fit to conceal. Natural reason confirms the suffrage of scripture, when it brands the whole magic art, to which evocations of the dead, and all necromantic divinations appertain, as founded in imposture. Others, who cannot admit that witches are able to disturb the souls of good men, much less of prophets, are nevertheless of opinion, that these wretched women can cause the devil to counterfeit the souls of the dead; and that in the case before us, an evil spirit appeared before Saul in the likeness of Samuel. See Patrick on 1 Sam. xxviii. 12. But this opinion gives an unwarrantable advantage for the support of idolatry to those impostures that were practised by heathen sorcerers and diviners. Besides, the very apparition of a spiritual and incorporeal being, and the gift of prophecy, are real miracles, and cannot take place but by divine appointment: and lastly, the historian calls the appearance to Saul, Samuel, which he could not do with truth, if it was no other than the devil, who here appears, not as a tempter, but as a very severe reprover of impiety and wickedness.

Many learned men have, therefore, maintained, that it was neither Samuel, nor an evil spirit, who here appeared to Saul; but that the whole was the work of human imposture. In support of this opinion, it may be pleaded, that the woman, to whom Saul applied to call up Samuel, was merely a ventriloquist, possessing an art very serviceable to those who counterfeited the answers of the dead. This opinion, however, like the foregoing one, contradicts the sacred historian, who not only represents the Pythoness as affirming, but himself affirms, that she saw Samuel, and that Samuel spoke to Saul: nor has he dropt the least hint, that it was not the real Samuel of whom he was speaking.

Others have supposed, that the appearance of Samuel to Saul was a divine miracle: though whether the miracle consisted in raising Samuel, or in presenting an image or repesentation of him before Saul, it is not necessary to determine. Accordingly, the apparition must be ascribed not to the power of enchantment, but to the immediate appointment of God, as a rebuke and punishment to Saul. This opinion is maintained by Dr. Waterland, in his Sermons, vol. ii. p. 267. and defended by Dr. Delany in his Life of David; but combated by Dr. Chandler.

WITCH-CRAFT, the crime of sorcery, especially in women. Many think there may be some foundation for what we call fascination, and witchcraft. We have innumerable instances and histories to this purpose, which it would not be fair to set aside, merely because they are not reconcileable to our philosophy: but, as it happens, there seems to be something in philosophy to countenance some of them.

Indeed, the ridiculous stories that are generally told, and the many impostures and delusions that have been discovered in all ages, are sufficient to demolish all faith in such a dubious crime; if the contrary evidence were not also extremely strong. Wherefore (says judge Blackstone), it seems to be the most eligible way to conclude, with an ingenious writer of our own (Spectat. Nº 117.) that in general there has been such a thing as witchcraft, though one cannot give credit to any particular modern instance of it. Some readers will, however, probably dissent from this inference of Mr. Addison, and the opinion of the learned judge, and incline to consider witchcraft in general as a species of imposture. But this is a subject which we have neither room nor inclination to discuss.

WI′TCHERY. *s.* (from *witch.*) Enchantment (*Raleigh*).

WI′TCRACKER. *s.* (*wit* and *cracker.*) A joker; one who breaks a jest (*Shakspeare*).

WI′TCRAFT. *s.* (*wit* and *craft.*) Contrivance; invention: obsolete (*Camden*).

To WITE. *v. a.* (pıꞇan, Saxon.) To blame; to reproach (*Spenser*).

Wite. *s.* (from the verb.) Blame; reproach (*Spenser*).

WITENA MOT, or Witena gemot, among the Anglo-Saxons, was a term which literally signified the assembly of the wise men; and was applied to the great council of the nation, of latter days called the parliament.

WITH. *preposit.* (pıð, Saxon.) 1. By: *sick* with *sorrow* (*Shakspeare*). 2. Noting the means: *she won him* with *promises* (*Dryden*). 3. Noting the instrument: *he was struck* with a *hailstone* (*Woodward*). 4. On the side of; for: *my friends are* with *the king* (*Genesis*). 5. In opposition to; in competition or contest: *I will leap* with *you for a wager* (*Shakspeare*). 6. Noting comparison: *he is compared* with *his betters* (*Sandys*). 7. In society: *it is difficult to live* with *bad men* (*Shakspeare*). 8. In company of: *you were* with *me when it was told* (*Shakspeare*). 9. In appendage: *my deed goes* with *my promise* (*Locke*). 10. In mutual dealing: *the English trade* with *all mankind* (*Shakspeare*). 11. Noting connexion: *there are always leaves* with *fruit* (*Dryden*). 12. Immediately after: *he laughed, and* with *that went away* (*Garth*). 13. Among: *I went* with *the crowd* (*Rymer*). 14. Upon: *my friend has great power* with *me* (*Addison*). 15. In consent: *he served* with *Milo*, and with *Milo he deserted* (*Pope*). 16. With, in composition, signifies opposition or privation; except *withal.*

WI′THAL. *ad.* (*with* and *all.*) 1. Along with the rest; likewise; at the same time (*Hooker*). 2. It is sometimes used by writers where we now use *with* (*Tillotson*).

WITHAM, a town in Essex, with a market on Tuesday. Its church, an ancient gothic structure, stands one mile from the town, at a place called Chipping Hill. It is eight miles N.E. of Chelmsford, and 37 E.N.E. of London. Lon. 0. 41 E. Lat. 51. 51 N.

Witham, a river in Lincolnshire, which waters Lincoln, and enters the German ocean, below Boston. From Lincoln it has a communication with the Trent, by a navigable canal, called the Fossdike, cut by king Henry I.

To WITHDRA′W. *v. a.* (*with* and *draw.*) 1. To take back; to bereave (*Hooker*). 2. To call away; to make to retire (*Broome*).

To Withdra′w. *v. n.* To retire; to retreat (*Tatler*).

WITHDRA′WINGROOM. *s.* (*withdraw* and *room.*) Room behind another room, for retirement (*Mortimer*).

WITHE. *s.* 1. A willow twig (*Bacon*). 2. A band; properly a band of twigs (*Mort.*).

To WI′THER. *v. n.* (ᵹepıðeꞃoꝺ, Saxon.) 1. To fade; to grow sapless; to dry up (*Hooker. South*). 2. To waste, or pine away (*Temple*). 3. To lose or want animal moisture (*Dryden*).

To Wi′ther. *v. a.* 1. To make to fade (*James*). 2. To make to shrink, decay, or wrinkle for want of animal moisture (*Milton*).

WITHERBAND, in the manage, a band or piece of iron, laid underneath a saddle, about four fingers above the withers of the horse, to keep tight the two pieces of wood that form the bow.

WI′THEREDNESS. *s.* (from *withered.*) The state of being withered; marcidity (*Mor.*).

WITHERING, or Shrivelling, in botany. Decaying without falling off. See Marcescens.

WITHERINGEA, in botany, a genus of the class tetrandria, order monogynia. Corol subcampanulate, with four gibbosities on the tube; calyx minute, obscurely four-toothed; pericarp two-celled. One species; a South American plant, with herbaceous stem, slightly villous, and pale yellow corol, obtusely square.

WITHERITE, in mineralogy, a native carbonat of barytes, the barolite of Kirwan, of a yellowish grey colour, passing into greyish-white, and pale wax yellow. It occurs in mass disseminated and rarely crystallised. The crystals are in general very small, either implanted in the massive varieties of this mineral, or grouped in bundles: their surface is generally rough. The longitudinal fracture of witherite is between radiated and lamellar, and has a shining lustre: the cross fracture is fine-grained, uneven, and glimmering with a greasy lustre. Its fragments are wedge-shaped. It is translucent, passing into semi-transparent. Its hardness is about equal to that of fluor. Its forms are:

1. A flattened hexahedral prism, terminated by hexahedral pyramids.

2. A pyramidal dodecahedron.

3. The same as the first, with the lateral edges of the prism and pyramid truncated.

Witherite is an active poison to animals. It was first discovered by Dr. Withering at Anglezach in the north of Lancashire, and from him it derives its name. It has since been found in other places, both in our own country and on the continent. See BARYTES WITHERINGII.

WITHERS, in a horse, begin where the mane ends, being joined to, and ending at, the tip of the shoulder-blades. The withers, when well raised, are reckoned a sign of strength and goodness. They keep the saddle from coming forward upon the horse's shoulders and neck, which otherwise would gall him, and a hurt in that part is very difficult to cure. The withers should not be too fleshy, for then they will be more subject to be galled.

To WITHHO'LD. *v. a.* preterit and part. *withheld,* or *withholden.* (*with* and *hold.*) 1. To restrain; to keep from action; to hold back (*Shakspeare, Dryden*). 2. To hinder; to obstruct (*Hooker*). 3. To take away; to refuse (*Spenser*).

WITHHO'LDER. *s.* (from *withhold.*) He who withholds.

WITHI'N. *preposition.* (ƿıðinnan, Saxon.) 1. In the inner part of (*Sprat*). 2. In the compass of; not beyond (*Wotton*). 3. Not reaching to any thing external (*Locke*). 4. Not longer ago than (*Shakspeare*). 5. Into the reach of (*Otway*). 6. In the reach of (*Milton*). 7. Into the heart or confidence of (*South*). 8. Not exceeding. 9. In the enclosure of (*Bacon*).

WITHI'N. *ad.* 1. In the inner parts; inwardly; internally (*Daniel*). 2. In the mind (*Dryden*).

WITHI'NSIDE. *ad.* (*within* and *side.*) In the interior parts (*Sharp*).

WITHO'UT. *preposition.* (ƿıðuꞇan, Saxon.) 1. Not with (*Hall*). 2. In a state of absence from (*Tatler*). 3. In the state of not having (*Bacon*). 4. Beyond; not within the compass of (*Burnet*). 5. Supposing the negation or omission of: without *peace there is no pleasure* (*Addison*). 6. Not by; not by the use of; not by the help of (*Bacon*). 7. On the outside of (*Dryden*). 8. Not within (*Add.*). 9. With exemption from (*Locke*).

WITHO'UT. *ad.* 1. Not on the inside (*Grew*). 2. Out of doors (*Wotton*). 3. Externally; not in the mind.

WITHO'UT. *conjunction.* Unless; if not; except (*Sidney*).

WITHO'UTEN. *preposition.* (ƿıðuꞇan, Saxon.) Without: obsolete (*Spenser*).

To WITHSTA'ND. *v. a.* (*with* and *stand.*) To gainstand; to oppose; to resist (*Sidney*).

WITHSTA'NDER. *s.* (from *withstand.*) An opponent; resisting power (*Raleigh*).

WI'THY. *s.* (ƿıðıᵹ, Saxon.) Willow.

WI'TLESS. *a.* (from *wit.*) Wanting understanding; inconsiderate (*Fairfax*).

WI'TLING. *s.* (diminutive of *wit.*) A pretender to wit; a man of petty smartness (*Pope*).

WI'TNESS. *s.* (ƿıꞇeꞅꞅe, Saxon.) 1. Testimony; attestation (*John*). 2. One who gives testimony (*Genesis*). 3. *With a* WITNESS. Effectually; to a great degree. A low phrase (*Prior*).

To WI'TNESS. *v. a.* (from the noun.) To attest; to tell with asseveration (*Donne*).

To WI'TNESS. *v. n.* To bear testimony (*Sidney*).

WI'TNESS. *interj.* An exclamation signifying that person or thing may attest it (*Milton*).

WITNEY, a town in Oxfordshire, with a market on Thursday. Here are manufactures of the finest blankets, and other thick woollens, called bearskins and kerseys. It is eight miles N.W. of Oxford, and 64 W.N.W. of London. Lon. 1. 18 W. Lat. 51. 52 N.

WITSENIA, in botany, a genus of the class triandria, order monogynia. Corol one-petalled, cylindrical, six-parted; stigma emarginate; capsule superior. Two species; natives of South America.

WITSIUS (Herman), a learned and eminent divine of North Holland, born at Enckhuisen in 1626. He was professor of divinity successively at Franeker, Utrecht, and Leyden; and applied himself successively to oriental learning, of which his capital work Ægyptiaca affords sufficient proof. His Economy of the Covenants between God and Men, is warmly recommended by Hervey in his Theron and Aspasio. He died in 1708.

WITSNA'PPER. *s.* (*wit* and *snap.*) One who affects repartee (*Shakspeare*).

WI'TTED. *a.* (from *wit.*) Having wit; as, *a quick* witted *boy.*

WITTENBERG, a strong town of Germany, capital of Saxony Proper, with a famous university and a castle. It is the place where the general assemblies of the circle of Upper Saxony are held. Martin Luther began the reformation here, in 1517, and is buried in a chapel belonging to the castle. Wittenberg has suffered greatly by wars, particularly in the siege by the Austrians in 1760. It is seated on the Elbe, over which is a bridge, 65 miles N.W. of Dresden. Lon. 12. 45 E. Lat. 51. 54 N.

WI'TTICISM. *s.* (from *witty.*) A mean attempt at wit (*L'Estrange*).

WI'TTILY. *ad.* (from *witty.*) 1. Ingeniously; cunningly; artfully (*Dryden*). 2. With flight of imagination (*Ben Jonson*).

WI'TTINESS. *s.* (from *witty.*) The quality of being witty (*Spenser*).

WI'TTINGLY. *ad.* (ƿıꞇan, Saxon, to weet or know.) Knowingly; not ignorantly; with knowledge; by design (*West*).

WITTLESEA, or Wittlesey Mere, a large fresh water lake in the fens of Huntingdonshire, and on the borders of the isle of Ely. It is about six miles in length, and varying from one to about three in breadth. It is about two miles from Yaxley, and five from Peterborough.

WI'TTOL. *s.* (pıττol, Saxon.) A man who knows the falsehood of his wife, and seems contented; a tame cuckold (*Cleave.*).

WI'TTOLLY. *ad.* (from *wittol.*) Cuckoldly (*Shakspeare*).

WI'TTY. *a.* (from *wit.*) 1. Judicious; ingenious; inventive (*Judith*). 2. Full of imagination (*South*). 3. Sarcastic; full of taunts (*Addison*).

WI'TWAL. *s.* (*vires*, Lat.) A bird (*Ains.*).

WI'TWORM. *s.* (*wit* and *worm.*) One that feeds on wit; a canker of wit (*Ben Jon.*).

To WIVE. *v. n.* (from *wife.*) To marry; to take a wife (*Shakspeare*).

To Wive. *v. a.* 1. To match to a wife (*Shakspeare*). 2. To take for a wife (*Shaks.*).

WIVELISCOMB, a town in Somersetshire, with a market on Tuesday, and a considerable manufacture of blanketing, kerseys, and other coarse cloths. It stands on the Thone, 20 miles N. of Exeter, and 153 W. by S. of London.

WI'VELY. *ad.* (from *wives; wifely* is more analogical.) Belonging to a wife (*Sidney*).

WIVES. *s.* The plural of *wife.*

WI'ZARD. *s.* (from *wise.*) A conjuror; an inchanter; a he witch (*Milton*).

WO. *s.* (pa, Saxon.) 1. Grief; sorrow; misery; calamity (*Pope*). 2. It is often used in denunciations, *wo be;* or in exclamations of sorrow, *wo is;* anciently *wo wurth* (*Ezekiel. Jeremiah*). 3. A denunciation of calamity; a curse (*South*).

WOAD, a valuable dyeing drug, whose use however has been considerably superseded by indigo. It gives a full-bodied and very fast blue to wool, though not very bright, so that it is always mixt with indigo at present.

The mode of cultivating and preparing woad in Thuringia is thus given by Wedelius. Woad requires a very rich deep soil, well manured and tilled. The seed is put in the ground in February. In June the leaves turn yellowish, and the plant begins to flower, which is the time for gathering the first crop, which is done by mowing down the whole plant close to the ground. It is then rinsed in water and spread out in the sun, and when dry enough, it is ground in mills to a fine paste, which is further dried by ventilation. This paste is then made up into cakes, which are heaped upon each other in a covered room, whereby they soon ferment, heat, and exhale a most penetrating, nauseous, ammoniacal odour, which spreads to a great distance. This fermentation is kept up for a sufficient time, occasionally watering the cakes when the heat is too great, till the whole falls into a coarse powder, in which state the woad is again made up into balls, and is ready for use.

The root of the plant throws out a fresh crop of young shoots, which are fit to cut in about six weeks after the first harvest, and are managed in the same way; and sometimes, if the season continues dry and warm, a third crop may be got in the same year, but this is much inferior to the two first.

The fermentation of the woad plant is peculiarly violent, and much practical skill is necessary in the management of it, for if suffered to heat too much the whole is converted to a black effete mass, and the blue colour, for which the plant is cultivated, is totally destroyed. The fermentation is both moderated and prolonged by the great hardness of the cakes, which cannot easily be broken up till they crumble to pieces of themselves by their spontaneous action.

WOAHOO, one of the Sandwich islands, seven leagues N.W. of Morotoi. From the appearance of the N.E. and N.W. parts, it is the finest island of the group. A bay is formed by the N. and W. extremities, into which a fine river empties itself, through a deep valley; but the water is brackish for 200 yards from the entrance. It contains 60,000 inhabitants. Lieutenant Hergist, commander of the Dædalus storeship, who had been sent from England in 1791, with a supply of provisions for the Discovery sloop, captain Vancouver, then on a voyage of discovery, was here surprised and murdered by the natives, together with Mr. Gooch the astronomer. Lon. 157. 51 W. Lat. 21. 43 N.

WO'BEGONE. *a.* (*wo* and *begone.*) Lost in wo; overwhelmed with sorrow (*Shaks.*).

WOBURN, a town in Bedfordshire, with a market on Friday. It is seated on a rising ground, and was formerly famous for its abbey, which now belongs to the duke of Bedford, and is his country seat. Woburn was burnt down in 1724, but has been neatly rebuilt, and has a free-school, and a charity-school, founded by a duke of Bedford. Near it is found great plenty of fuller's earth. It is 12 miles S. of Bedford, and 42 N.N.W. of London. Lon. 0. 32 W. Lat. 52. 2 N.

WODEN. See Odin.

WODNAY, a town of Bohemia, in the circle of Prach, seated on the Bianitz, 12 miles N.W. of Budweis, and 56 S. of Prague. Lon. 14. 50 E. Lat. 42. 9 N.

WOERDEN, a town of the United Provinces, in Holland, seated on the Rhine, 18 miles S. of Amsterdam. It was taken by the French in 1672 and 1794. Lon. 4. 51 E. Lat. 52. 6 N.

WOFT. The obsolete participle passive from *to waft* (*Shakspeare*).

WO'FUL. *a.* (*wo* and *full.*) 1. Sorrowful; afflicted; mourning (*Dryden*). 2. Calamitous; afflictive (*Philips*). 3. Wretched; paltry; sorry (*Pope*).

WO'FULLY. *ad.* (from *woful*). 1. Sorrowfully; mournfully. 2. Wretchedly: in a sense of contempt (*South*).

WO'FULNESS. *s.* (from *woful.*) Misery; calamity.

WOHLAU, a strong town of Silesia, capital of a duchy of the same name, with a castle. The greatest part of the inhabitants are employed in a woollen manufacture. It is seated near the Oder, 20 miles N.W. of Breslau, and 32 S.E. of Glogaw. Lon. 16. 54 E. Lat. 51. 18 N.

WOLD. *s. Wold*, whether singly or jointly, in the names of places, signifies a plain open country; from the Saxon ƿolꝺ, a plain and a place without wood (*Gibson*).

WOLF. (See Canis.) This animal, although not now to be found amongst us, was once a very destructive native of the country, and all possible means were adopted to rid it of so rapacious a despoiler. King Edgar attempted to effect it in England, by remitting the punishment of certain crimes on producing a certain number of wolves' tongues: and in Wales, the tax of gold and silver was commuted for an annual tribute of their heads. Some centuries after they had again increased so numerously as once more to become an object of royal attention, and great rewards were again held forth for their destruction. Edward the First issued his royal mandate to Peter Corbet, to superintend and assist in the destruction of them in the several counties of Gloucester, Worcester, Hereford, Salop, and Stafford. In other counties, certain persons held their lands upon condition of hunting, taking, and destroying a number of wolves annually, in proportion to the quantity of land so held. They were so numerous in Scotland about the middle of the fifteenth century, that they completely overrun the country, to the destruction of the flocks, and immense losses to the community; nor were they, with every exertion of the natives, totally extirpated till the year 1680, when the last wolf is recorded to have fallen by the hand of the famous sir Ewen Cameron. Ireland in those times suffered by their immense numbers in an equal degree with England, Scotland, and Wales; and she suffered for a much longer time, as they were not perfectly annihilated in that country till the earlier part of the last century.

Wolf dog. See Canis.

Wolf fish. See Anarhicas.

WOLFE (James), a celebrated English general, born at Westerham, Kent, 1726. He distinguished himself at the battle of la Feld, and was present afterwards at every engagement during the war. At the peace of Aix-la-Chapelle, instead of resigning himself to indolence, he devoted himself more assiduously to military labours, and introduced such discipline in his corps, that the gallant conduct of the soldiers in the plains of Minden is proverbial to this day. When Mr. Pitt, afterwards earl of Chatham, was placed at the head of affairs, Wolfe was called forth to execute his gigantic plans. Though the attack on Rochfort was abandoned, the fall of Louisburg displayed the abilities of Wolfe, who was immediately after selected, 1759, against Quebec. In this enterprize, the many difficulties from situation and from superior numbers were quickly surmounted by perseverance and by military stratagem, and the English troops triumphed over all opposition; but in the moment of victory, the conqueror received a ball through his wrist; yet, disregarding the wound, he animated his men. A second ball shot him through the body, and rendered it necessary to carry him off to the rear of the troops. In the last agonies his attention was roused by the cry of "they run!" and eagerly enquiring who ran, he no sooner heard the reply "the defeated French," than he exclaimed, "then I thank God, and die contented!" and instantly expired, 13th Sept. 1759. His remains were brought to England, and buried with becoming pomp in Westminster abbey, where a splendid monument was erected to his honour. His glorious death forms the subject of a beautiful painting by West, engraved in a masterly manner by Woollet. To the abilities of the general Wolfe united the milder virtues of life. While he bore the meed of superiority in constitutional courage, in penetration, in cool judgment, and in unshaken presence of mind, he was equally respected for beneficence and charity, and the estimation of the great was accompanied by the love of the soldiery and the gratitude of the poor.

WOLFENBUTTLE, one of the strongest towns of Germany, in the duchy of Brunswick, with a castle, where the duke of Brunswick Wolfenbuttle resides. Here is an excellent library, with a cabinet of curiosities relating to natural history. It is seated on the Ocker, seven miles S. of Brunswick, and 30 W. of Halberstadt. Lon. 10. 42 E. Lat. 52. 18 N.

WOLFF (Christian), was born at Breslau, 1679. At Jena university he made a most extraordinary progress, and in 1702 he repaired to Leipsic, where he opened his lectures by a famous dissertation, called philosophia practica universalis methodo mathematicâ conscripta. He was invited by the universities of Giessen and of Halle to accept the professorial chair of mathematics. He went to Halle 1707, and to his academical honours was soon after added the title of counsellor to the king of Prussia. In his Latin oration on the morality of the Chinese, in 1721, he spoke with such applause of their philosophy and virtues, that the university was offended, and not only his tenets were reprobated, but he was, by the representation of the body of divines, ordered to leave the country in twenty-four hours. He retired to Cassel, and became professor of mathematics and philosophy at Marpurg, and counsellor to the landgrave. The favourable opinion of the learned atoned for the persecution of Halle university, he was declared honorary professor of the Petersburg academy of sciences, and admitted a member of that of Paris, &c. Prejudices at last passed away, and in 1741, with some reluctance, he assumed the office of privy counsellor, of vice-chancellor, and of professor of the law of nature and of nations in the university of Halle. He afterwards was raised to the dignity of chancellor of the university, and created a baron of the Roman empire. This great man, whose whole life was devoted to advance science and virtue, died at Halle, of the gout in his stomach, 1754, aged 76. His works in Latin and German are more than sixty in number, the best of which known are a Course of Mathematics, 2 vols. 4to.; Philosophia Rationalis, sive Logica, 4to.; a System of Metaphysics, 4to.; Jus Naturæ, 8 vols. 4to.; Horæ Subsecivæ Magdeburg; Dictionary on the Mathematics, &c.

WO'LFISH. *a.* (from *wolf.*) Resembling a wolf in qualities or form.

WOLFRAM, in mineralogy, a species of tungsten. See TUNGSTENUM.

WOLFSBANE. See ACONITE.

WOLFSPERG, a town of Germany, in Lower Carinthia, with a castle, on which the district about it depends. It is seated on the Lavand, at the foot of a mountain covered with wood, and full of wolves, whence the town took its name. It is 36 miles E. of Clagenfurt. Lon. 15. 10 E. Lat. 46. 56 N.

WOLGAST, a considerable town of Germany, in Swedish Pomerania, capital of a territory of the same name, with a castle, and one of the best and largest harbours on the Baltic. It is seated on the Pfin, 12 miles S.E. of Gripswald, 25 S.E. of Stralsund, and 45 N. W. of Stettin. Lon. 14. 4 E. Lat. 54. 1 N.

WOLKOSKOI, a town of Russia, in the government of Novogorod, 100 miles S.E. of Novogorod. Lon. 34. 20 E. Lat. 57. 30 N.

WOLKOWSKA, a town of Lithuania, in the palatinate of Novogrodeck, seated on the Ros, 23 miles S.E. of Grodno. Lon. 24. 46 E. Lat. 53. 4 N.

WOLLASTON (William), an eminent divine, was born in Staffordshire in 1659, and educated at Sidney-Sussex college, Cambridge, where he took his degrees in arts. In 1682 he became assistant to the head master of Birmingham school; and at the end of four years he was chosen second master. In this employment he continued till 1688, when, by the death of a rich relation, he became possessed of an ample fortune: he settled in London the same year, but his manner of living was retired and studious. He wrote many valuable pieces, but the most celebrated is his Religion of Nature delineated; a work of great learning and acumen, but founded upon a very questionable theory. He died in 1724, in consequence of an accident, which prevented his completion of a projected work, in which was to be delineated "The Religion of Jesus."

WOLSEY (Thomas), cardinal, was born at Ipswich, in Suffolk, in 1471. He was the son of a butcher, and educated at Oxford, where he became fellow of Magdalen college; and when master of arts, had the care of the school adjoining to it. Having the care of three sons of Thomas Grey, marquis of Dorset, that nobleman presented him to the rectory of Lymington in 1500. He afterwards, by insinuating himself into the favour of several great persons, procured a recommendation to Henry VII. who sent him on an embassy to the emperor Maximilian. On his return he was rewarded with the deanery of Lincoln, and a prebend in the same church. Upon the accession of Henry VIII. he succeeded in obtaining the favour of that king, who gave him the rectory of Torrington, in Devonshire; he was next made canon of Windsor, and registrar of the order of the garter. In 1512 he was preferred to a prebend in the church of York, and soon after to the deanery. He attended the king in his expedition to France, and upon the taking of Tournay, Wolsey was made bishop of that city, in 1514: he was made bishop of Lincoln, in November following; archbishop of York in 1515, cardinal of St. Cicely, by the interest of the kings of England and France, and in December, lord chancellor of England; he was also legate *à latere* to the pope. From these preferments, and by presents and pensions from foreign princes, his income is said to have exceeded the revenues of the crown; and he lived in the state and style of a sovereign prince, keeping 800 servants, among whom were 9 or 10 lords, 15 knights, and 40 esquires. October 28th, 1529, he was impeached, and his immense property seized for the king's use. November 1530, he was arrested at York, but died in his way to London, at Leicester-abbey, where he was buried. A very interesting life of this cardinal, by Cavendish, has been recently given to the public by Dr. Wordsworth, in his Ecclesiastical Biography.

WOLVERENE. See URSUS.

WOLVERHAMPTON, a town in Staffordshire, with a market on Wednesday. It has an ancient collegiate church, annexed to the deanery of Windsor, and a handsome chapel. Here is a great iron manufacture, consisting of locks, hinges, buckles, corkscrews, and japanned ware. It is seated on a hill, 13 miles S. of Stafford, and 124 N.W. of London. Lon. 2. 0 W. Lat. 52. 47 N.

WOLVES-TEETH, in veterinary language. Teeth that grow in such a manner that their points prick or wound either the tongue or gums in eating. Old horses are most liable to this peculiarity, and those whose upper overshoot their under teeth in a great degree. To remedy this, some chip off the superfluous parts of the teeth with a chisel and mallet; but filing them down is much the best way.

WO'LVISH. *a.* (from *wolves*, of *wolf*; *wolfish* is more proper.) Resembling a wolf (*Howel*).

WO'MAN. *s.* (ƿıꝼman, ƿımman, Saxon; whence we yet pronounce *women*, in the plural, *wimmen*. *Skinner*). 1. The female of the human race (*Otway*). 2. A female attendant on a person of rank (*Shakspeare*).

To WO'MAN. *v. a.* (from the noun.) To make pliant like a woman (*Shakspeare*).

WO'MANED. *a.* (from *woman.*) Accompanied or united with a woman (*Shakspeare*).

WOMANHA'TER. *s.* (*woman* and *hater.*) One that has an aversion for the female sex (*Swift*).

WO'MANHEAD. WO'MANHOOD. *s.*

(from *woman.*) The character and collective qualities of a woman (*Spenser. Donne*).

To WO'MANISE. *v. a.* (from *woman.*) To emasculate; to effeminate; to soften (*Sidney*).

WO'MANISH. *a.* (from *woman.*) Suitable to a woman; having the qualities of a woman; resembling a woman (*Ascham*).

WOMANKI'ND. *s.* (*woman* and *kind.*) The female sex; the race of women (*Sidney*).

WO'MANLY. *a.* (from *woman.*) 1. Becoming a woman; suiting a woman; feminine; not masculine (*Donne*). 2. Not childish; not girlish (*Arbuthnot*).

Wo'manly. *ad.* (from *woman.*) In the manner of a woman; effeminately.

WOMB. *s.* (*wamba*, Gothic; ƿamb, Saxon; *wœmb*, Islandic.) 1. The place of the fetus in the mother. See Uterus. 2. The place whence any thing is produced (*Dryden*). 3. Any cavity (*Addison*).

To Womb. *v. a.* (from the noun.) To enclose; to breed in secret (*Shakspeare*).

WOMBAT, a species of opossum peculiar to New South Wales, destitute of tail, about two feet two inches long; weight about twenty pounds when full grown. There is a variety of this which the natives call roala, and whose flesh they are very fond of. It is covered with a fine soft fur, lead-coloured on the back, and white on the belly: ears short, erect, and pointed; eyes generally ruminating, sometimes fiery and menacing: usual posture sitting. It has no pouch, and the young are carried by the mother on her shoulders. See Didelphis.

WO'MBY. *a.* (from *womb.*) Capacious (*Shakspeare*).

WO'MEN. *s.* Plural of *woman.*

WON. The pret. and part. pass. of *win.*

To Won. *v. n.* (ƿunian, Saxon; *wonen*, German.) To dwell; to live; to have abode: not in use (*Fairfax*).

Won. *s.* (from the verb.) Dwelling; habitation: obsolete (*Spenser*).

To WO'NDER. *v. n.* (ƿunꝺꞃian, Saxon; *wonder*, Dutch.) To be struck with admiration; to be pleased or surprised so as to be astonished (*South*).

Wo'nder. *s.* (ƿunꝺoꞃ, Saxon; *wonder*, Dutch.) 1. Admiration; astonishment; amazement; surprise caused by something unusual or unexpected (*Bacon*). 2. Cause of wonder; a strange thing; something more or greater than can be expected (*Carew*). 3. Any thing mentioned with wonder (*Watts*).

WO'NDERFUL. *a.* (*wonder* and *full.*) Admirable; strange; astonishing (*Milton*).

WO'NDERFULLY. *ad.* (from *wonderful.*) In a wonderful manner; to a wonderful degree (*Addison*).

WO'NDERMENT. *s.* (from *wonder.*) Astonishment; amazement (*Spenser*).

WO'NDERSTRUCK. *a.* (*wonder* and *strike.*) Amazed (*Dryden*).

WO'NDROUS. *a.* (contracted from *wonderous*, of *wonder.*) Admirable; marvellous; strange; surprising (*Dryden*).

WO'NDROUSLY. *ad.* (from *wondrous.*) 1. To a strange degree (*Drayton*). 2. In a strange manner (*Chapman*).

To WONT. *To be* Wont. *v. n.* preterit and participle *wont.* (ƿunian, Saxon; *gewoonen*, Dutch.) To be accustomed; to use; to be used (*Bacon*).

Wont. *s.* (from the verb.) Custom; habit; use: out of use (*Milton*).

Wo'n't. A contraction of *would not*, used for *will not.*

WO'NTED. *part. a.* (from the verb.) Accustomed; used; usual (*Dryden*).

WO'NTEDNESS. *s.* (from *wonted.*) State of being accustomed to: not used (*King Charles*).

WO'NTLESS. *a.* (from *wont.*) Unaccustomed; unusual: obsolete (*Spenser*).

To WOO. *v. a.* (aƿoᵹoꝺ, courted, Saxon.) 1. To court; to sue to for love (*Pope*). 2. To court solicitously; to invite with importunity (*Davies*).

To Woo. *v. n.* To court; to make love (*Dryden*).

WOOD. *a.* (ƿoꝺ, Saxon; *woed*, Dutch.) Mad; furious; raging: obsolete (*Spenser*).

Wood. *s.* (ƿuꝺe, Saxon; *woud*, Dutch.) 1. A large and thick collection of trees (*Dryden*).

Wood, the hard and fibrous substance of plants, concerning the growth, structure, and chemical properties of which, the reader may turn to the articles Botany, Physiology, Vegetation.

There are, however, two curious powers which the wood of plants possesses, which we have not hitherto had an opportunity of noticing, and which we will therefore briefly touch upon in the present article: we mean, its capacity of imbibing colouring materials, and of undergoing petrifaction.

CAPACITY OF IMBIBING COLOURING MATERIALS.

The surface of wood is readily stained by a variety of substances; and if these be allowed to remain in contact with it, they sink into the interior, and often produce an agreeable effect in cabinet work: and not unfrequently give to ordinary timber a very good resemblance of the more expensive coloured woods, trunks of foreign countries. The following experiments may be selected from many others in proof of the truth of this remark, and are given by Beckman to the same effect.

Some maple-wood was sawn into thin slips, about a twelfth of an inch in thickness; one of the slips was immersed in a solution of dragon's blood in oil of turpentine. After a considerable time, the wood had absorbed so much of the resin as to sink in the liquor, and it was then of a fine mahogany colour, showing the veins of the wood by a lighter shade of red. Another slip of wood was dyed in the same manner, in a solution of gamboge in oil of turpentine, which gave a fine yellow; and by a mixture of gamboge and dragon's blood in different proportions, a variety of different tints may be produced. Beech wood was found to take the colour sooner, but it was less brilliant; a solution of these resins, also, in alcohol, answered very well. With these kinds of substances, however, it is necessary, in order to produce a good colour, either to boil the wood in the liquor, or at least to continue the digestion for a considerable time, so that they can only be employed to great advantage with small pieces, such as are used for the finer kinds of inlaying or veneering. But many saline and metallic solutions produce a more speedy effect in changing the colour of the wood, which may be applied to a surface of any extent.

All the white woods are rendered much whiter by being soaked in a solution of alum. This is probably owing to a decomposition of the salt, and a deposition of its earth within the pores of the wood in very fine division.

A deep black is given to wood in various ways. Oaks and other woods that abound in gallic acid receive a black from the solutions of iron, but these woods are comparatively rare.

If concentrated sulphuric acid be smeared over the surface of wood, it blackens it very speedily; and this colour spreads deep within the wood in a few hours, its surface being at the same time covered with a tenacious froth. When this is thoroughly washed off, and the wood dried, the surface is of a deep charcoal black, and hard enough to take a good polish; but it is not easy to get rid of every particle of the acid. A much finer and better black is given, by first soaking the wood in any solution of lead, and afterwards for a day or two in a solution of arsenical liver of sulphur, made by boiling in water a mixture of two parts of quick lime and one of orpiment. Probably the simple sulphuret of lime would answer as well. All the other metallic solutions that naturally blacken with the sulphurets will produce an equal effect, as those of silver, bismuth, and iron, but lead succeeds the best.

With the woods that contain no gallic acid, a yellow-brown dye, varying to brown-red, is given, by smearing them over a few times with a solution of iron in dilute nitric acid. This dye is very permanent, and does not change by the action of light or air.

A greenish hue may be given by the solutions of copper, but it is difficult to make wood take it equally, or to give any depth of colour by this metallic solution.

Different hues may be produced by strong decoctions of the colouring woods and other dyes mixed with alum, which need not be here enumerated.

In all the above processes, and particularly where any saline or metallic solution is employed, the natural gloss of the wood is much impaired, which requires that it should be finished with linseed or amber, or any similar varnish, which has the effect both of rendering the dye more permanent, and of considerably increasing its beauty.

PETRIFIED WOOD.

Wood, in ordinary circumstances, whether upon the surface of the earth, or buried under it, is gradually decomposed by the concurrent action of air and water; its texture is broken down, the connexion between the several vegetable principles of which it consists is dissolved, its ingredients enter into new combinations, and no vestige remains either of its organization or chemical properties. Sometimes, however, it happens, that the external figure and internal arrangement are preserved, while the chemical properties have undergone very notable alterations, in consequence of which the natural decay is prodigiously retarded, and often even wholly suspended. Wood that has undergone this change is said to be petrified, or mineralized.

There are three substances by which this change may be brought about; namely, pyrites, oxyd of iron, and siliceous earth in the form of agate or horn-stone. These constitute so many species of petrified wood.

The *pyritous fossil wood* occurs principally in the independent cone formation: it is composed entirely of common pyrites, often in a state of semi-decomposition; it appears to contain no ligneous particles, but retains with considerable exactness the external figure, and, in some degree, the internal organization of wood. The reason why this species presents a less striking resemblance to wood than the others do is probably the strong crystalline polarity which pyrite possesses: in splitting longitudinally a piece of pyritized wood, it not unfrequently happens, that the fibres representing the concentric layers of wood are composed of minute cubes laterally aggregated to each other.

The *ferruginous fossil wood* is found in hemalite, and especially in argillaceous iron ore. Externally it presents the appearance of trunks and branches, and its internal texture has a close resemblance to that of wood. In its chemical composition it does not appear to differ materially from common argillaceous iron ore.

But *agatized wood* is that which has been the most examined. It has been made a distinct mineral species by Werner, who has given it the name of Holzstein, or woodstone, of which the following are the characters. Its colour is ash-grey, passing into greyish-black, yellowish, brownish, and blood-red: the colours run into each other, forming clouds and stripes in a longitudinal direction. It occurs in the form of trunks, branches, and roots; and presents in the utmost perfection the internal organization of wood, not only the longitudinal fibres and concentric layers being visible, but even the knots and medullary processes. Its internal lustre is various, being between glistening and dull. Its cross fracture is imperfectly conchoidal; its longitudinal fracture splintery and fibrous. It is moderately translucent; is harder than glass, and gives fire with steel, but is easily frangible.

It occurs in sand and sand-stone in various countries, especially in the hill St. Symphorien, near Etampes, in France; in Saxony, Bohemia, and Hungary; near Loch Neagh in Ireland; in the beds of sand-stone that lie above the fuller's earth, near Woburn in Bedfordshire; and also in the sandy deserts to the west of Egypt.

It not unfrequently happens, that agatized wood, before the petrifying process has begun, has been corroded by worms; in which case not only the perforation is filled with siliceous matter, but even the substance of the worm itself has been completely agatized.

Agatized wood discovers slight traces of its origin, by affording a few drops of a watery empyreumatic liquor by distillation; it consists, however, for the most part of silex.

The origin of petrified wood is generally attributed to the gradual infiltration of the petrifying substance; but to this theory, however simple and ingenious, there are many important objections. See the article Chalcedonius.

Wood (Anthony), an eminent biographer and antiquarian, was the son of Thomas Wood, bachelor of arts and of the civil law, and was born at Oxford in 1632. He studied at Merton college, and in 1655 took the degree of master of arts. He wrote, 1. The History and Antiquities of the University of Oxford; which was afterwards translated into Latin by Mr. Wase and Mr. Peers, under the title of Historia & Antiquitates Universitatis Oxoniensis, 2 vols. folio: 2. Athenæ Oxonienses; or, an exact Account of all the Writers and Bishops who have had their Education in the University of Oxford, from the Year 1500 to 1600, 2 vols. folio; which was greatly enlarged in a second edition published in 1721 by bishop Tanner. Upon the first publication of this work the author was attacked by the university, in defence of Edward earl of Clarendon, lord high-chancellor of England, and chancellor of the university, and was likewise animadverted upon by bishop Burnet; upon which he published a vindication of the historiographer of the university of Oxford. He died at Oxford, of a retention of urine, in 1695.

WOODBINE, in botany. See Lonicera.

WOODBRIDGE, a town in Suffolk, with a market on Wednesday, seated on the E. side of a sandy hill, on the river Deben, eight miles from the sea. It has docks for building ships, has a great corn trade, and is famous for refining salt. It had an abbey, of which there are no remarkable ruins. It is seven miles E.N.E. of Ipswich, and 76 N.E. of London. Lon. 1. 25 E. Lat. 52. 11 N.

WOODCHAT, in ornithology. See Lanius.

WOODCOCK, in ornithology. (See Scolopax.) The woodcock is a bird of passage, and arrives in this country about the month of October; though his earlier or later flight depends upon the prevalence of the winds by which he is brought over. The north and north-easterly (particularly when accompanied with fogs) are the most favourable for their arrival. Fatigued with the length of their flight, when reaching our shores, these birds drop under any tree, shrub, or bush, bearing the appearance of covert: after rest and refreshment, they in longer flights disperse themselves in the different woods, copses, shaws, and hedge-rows, in various parts of the country. They are by no means remarkable for remaining long in one place, or even in the same neighbourhood; on the contrary, they never continue more than ten or twelve days in any particular spot, though favourably adapted to their reception.

The woodcock is a very clumsy waddling walker, as is the case with every kind of fowl that has short legs and long wings: when flushed, he rises heavily from the ground, and makes a considerable noise before he can gather wind sufficient for flight. If found in a rushy spot, a ditch, or a hedge-row, whence he is obliged to present an open mark, he frequently skims slowly over the ground, and is very easily shot; as, indeed, is the case elsewhere, provided any obstruction does not arise from intervening branches of trees, and boughs of underwood, which, in cock and covert shooting, must always be expected. After a plentiful arrival, they afford excellent sport, and may be found as well with pointers as with spaniels, (the pointers being hunted in the covert with bells;) but cock shooting with spaniels is almost universally preferred, as it is more enlivening to hear the spaniels occasionally in quest, than pursue the game in a total silence.

WOO'DDRINK. *s.* Decoction or infusion of medicinal woods, as sassafras (*Floyer*).

WOO'DED. *a.* (from *wood.*) Supplied with wood (*Arbuthnot*).

WOO'DEN. *a.* (from *wood.*) 1. Ligneous; made of wood (*Shakspeare*). 2. Clumsy; awkward (*Collier*).

WOODGOAT. See Capræ.

WOO'DHOLE. *s.* (*wood* and *hole.*) Place where wood is laid up (*Philips*).

WOO'DLAND. *s.* (*wood* and *land.*) Woods; ground covered with woods (*Fenton*).

WOO'DLARK. See Alaudæ.

WOODLOUSE. See Oniscus and Millepedes.

WOOD OF LIFE. See Guaiacum.

WOO'DMAN. *s.* (*wood* and *man.*) A sportsman; a hunter (*Pope*).

WOO'DMONGER. *s.* (*wood* and *monger.*) A woodseller.

WOO'DNOTE. *s.* Wild music (*Milton*).

WOO'DNYMPH. *s.* (*wood* and *nymph.*) A fabled goddess of the woods (*Milton*).

WOODO'FFERING. *s.* Wood burnt on the altar (*Nehemiah*).

WOODPECKER. See Picus.

WOODPIGEON. See Columba.

WOODROOF. See Asperula.

WOODSORREL. See Lujula and Oxalis.

WOODSTOCK, a town of Oxfordshire in England, pleasantly seated on a rising ground, and on a rivulet; a well-compacted borough town, and sends two members to parliament; but is chiefly noted for Blenheim-house, a fine palace, built in memory of the victory obtained by the duke of Marlborough over the French and Bavarians in August 1704. It was erected at the public expence, and is one of the noblest seats in Europe. One of the passages to it is over a bridge with one arch, 190 feet in diameter, resembling the Rialto at Venice. The gardens take up a hundred acres of ground; and the offices, which are very grand, have room enough to accommodate 300 people. The apartments of the palace are magnificently furnished; and the staircases, statues, paintings, library, &c. are very splendid, while the park is both extensive and picturesque. There is also an observatory, with some excellent instruments. In Blenheim park originally stood a royal palace, the favourite retreat of several kings of England, till the reign of Charles I., when it was almost wholly in ruins. After the building of Blenheim, every trace of the ancient edifice was removed, and two elms were planted on its site. King Ethelred held a parliament at Woodstock palace; and there Alfred the Great translated Boetius de Consolatione Philosophiæ. Henry I. beautified the palace;

and here resided Rosamond, mistress of Henry II. Edmund, second son of Edward I., was born at this palace; also Edward, eldest son of Edward III.; and here the princess Elisabeth was confined by her sister Mary. Woodstock has a manufacture of gloves, and of steel watch chains. The poet Chaucer was born, lived, and died here. It is eight miles N.W. of Oxford, and 62 W.N.W. of London.

WOOD TIN. See Stannum.

WOODWARDIA, in botany, a genus of the class cryptogamia, order filices. Fructification in oblong distinct dots, disposed in a regular row along the ribs: involucre superficial, vaulted, opening towards the rib. Five species; foreign ferns.

WOODWAXEN. See Genista.

WOODWREN. See Motacilla.

WOO'DY. *a.* (from *wood.*) 1. Abounding with wood (*Milton*). 2. Ligneous; consisting of wood (*Locke*). 3. Relating to woods; sylvan (*Spenser*).

Woody nightshade. See Dulcamara.

WOO'ER. *s.* (from *woo.*) One who courts a woman (*Chapman*).

WOOF. *s.* (from *wove.*) 1. The set of threads that crosses the warp; the weft (*Bacon*). 2. Texture; cloth (*Milton*).

WOO'INGLY. *ad.* (from *wooing.*) Pleasingly; so as to invite to stay (*Shakspeare*).

WOOL. *s.* (pul, Saxon; *wollen*, Dutch.) 1. The fleece of sheep; that which is woven into cloth (*Raleigh*). 2. Any short thick hair (*Shakspeare*).

Wool. (*wolle*, Germ.; *laine*, Fr.) This material is the basis of manufactures so important, and has been ascertained to possess such various chemical properties, that it would be unpardonable not to notice it at some length in a dictionary directly appropriated to the service of British arts and sciences.

PHYSIOLOGICAL REMARKS.

The fineness of the wool is usually supposed to depend upon the nature of the soil, of the climate, or of both together. It is a singular circumstance, however, and in some degree adverse to this opinion, that of the two finest kinds of wool we are at present acquainted with, that of Spain, and that of New South Wales, from which specimens have been lately imported of as delicate a texture as the best Merino, the former is the produce of a calcareous soil, covered with a fine leguminous plant, of the vetch family, and the latter of a soil in which not a particle of lime or calcareous earth is to be met with, and covered entirely with a long, luxuriant grass. Nor is it that the breeds are from a like quarter, for though, owing to the kindness of his Majesty, the Rev. Samuel Marsden, principal chaplain to the colony of New South Wales, has lately imported a few Merinos, the general stock is an off-set from the Cape of Good Hope. Yet that soil or climate, or both together, have a considerable influence, not only over the colour, but over the texture of the fleece, is unquestionable; since it is a well-known fact, that the wool of the Angola sheep, as also the hair of the Angola goat and rabbit, are perfectly glossy, and constitute a direct silk; while the wool of the African sheep, on the opposite side of the Mediterranean, is degenerated into a harsh coarse hair. This is a subject which has not been sufficiently studied, but is entitled to the most active attention of the physiologist.

CHEMICAL PROPERTIES.

Wool, either in a raw or manufactured state, has always been the principal of the staple articles of this country. The price of wool was, in very early times, much higher, in proportion to the wages of labour, the rent of land, and the price of butcher's meat, than at present. It was, before the time of Edward III. always exported raw, the art of working it into cloth and dying being so imperfectly known, that no persons above the degree of working people could go dressed in cloth of English manufacture.

The first steps taken to encourage the manufacture of woollen cloths was by Edward III. who procured some good workmen from the Netherlands, by means of protection and encouragement. The value of wool was considered as so essentially solid, that taxes were vested in that commodity, reckoning by the number of sacks; and in proportion to the price of the necessaries of life, and value of silver, wool was at least three times dearer then than it is now. The manufacturing of cloth being once introduced into the country, the policy of preventing the exportation of the raw material was soon evident; and the first act was that of Henry IV. c. 2, by which the exportation of sheep, lambs, or rams is forbidden, under very heavy penalties.

By statute 28 Geo. III. all former statutes respecting the exportation of wool and sheep are repealed, and numerous restrictions are consolidated in that statute. By this act, if any person shall send or receive any sheep on board any vessel, to be carried out of the kingdom, such vessel shall be forfeited, and the person so offending shall forfeit 3*l.* for every sheep, and suffer solitary imprisonment for three months. But wether sheep, by a licence from the collector of the customs, may be taken on board, for the use of the ship's company; and every person who shall export any wool, or woollen articles slightly made up, so as easily to be reduced again to wool, or any fuller's earth, or tobacco-pipe clay; and every carrier, ship-owner, commander, mariner, or other person, who shall knowingly assist in exporting, or attempting to export, these articles, shall forfeit 3*s.* for every pound weight, or the sum of 50*l.* in the whole, at the election of the prosecutor, and shall also suffer solitary imprisonment for three months. But wool may be carried coastwise, upon being duly entered, and security being given, according to the directions of the statute, to the officer of the port from whence the same shall be conveyed; and the owners of sheep within five miles of the sea, and ten miles in Kent and Sussex, cannot remove the wool, without giving notice to the officer of the nearest port, as directed by the statute.

Some of the simple chemical properties of wool have been examined by M. Achard, and compared with the corresponding properties of the hair of different animals. The copious generation of oxalic acid by treatment of wool with nitric acid, has been particularly described and explained by M. Berthollet in his beautiful researches on animal matter; and the great solvent power of the caustic fixed alkalies has been happily applied to some use by M. Chaptal as a saponaceous compound.

Wool in the state in which it is taken from the sheep is always mixed with a great deal of dirt and foulness of different kinds, and in particular is strongly imbued with a natural strong smelling grease. These impurities are got rid of by washing, fulling, and combing, by which the wool is rendered remarkably white, soft, clean, light, and springy under the hand. When boiled in water for several hours in a common vessel, wool is not in any way altered in weight or texture, nor does the water acquire any sensible impregnation.

The action of the nitric acid on wool is very curious. When cold, this acid only disengages a large quantity of azotic gass, but when warmed, much nitrous gass is given out, and at least two new acids are formed, viz. the malic and the oxalic; the latter is in greater abundance than even from sugar and nitrous acid, or any other hydro-carbonous basis. A small scum of a peculiar oil always arises during the action of nitrous acid on these animal substances.

The carbonated alkalies have little action on wool, but the caustic fixed alkalies when digested with it speedily weaken its fibre, reduce it to a soft gelatinous pulp, and finally make a perfect solution. The alkali at the same time loses its alkaline properties as it does in common soap. This saponaceous solution of wool is made for experiment in a few minutes by boiling bits of wool or flannel in a caustic alkaline solution, and it has been recommended by Chaptal to be employed instead of common soap in cleansing cotton and other goods in manufactures, as by this means a number of refuse bits and clippings of wool and woollen cloth which are now thrown away, may be put to some use. This soapy solution does not lather well when agitated with water, nevertheless it acts very powerfully in cleaning cloth. It has a strong and somewhat offensive smell, which is left at first in the cloth, but goes off by short exposure to the air.

MORDANTS AND COLOURING.

Upon this subject we have lately received a very excellent and intelligent memoir, drawn up by MM. Thenard and Roard, and communicated to the Physical and Mathematical Class of the French Imperial Institute; and we shall select from it such observations as are most worthy of notice.

The name of mordant is given, in the art of dyeing, to those substances which serve to produce a more intimate combination of colouring matters with the different stuffs, and to augment the brightness and beauty of them. This property belongs to a great number of saline and metallic substances: but those which possess it in the highest degree, and which, for this reason, are exclusively made use of by dyers, are alum, acetat of alumina, tartar, and the solutions of tin.

1. *Impregnation of wool with alum.*—The manner of applying the alum varies according to the nature of the stuffs, and according to the colours we wish to obtain. Silks are permitted to macerate for several days in a solution of alum, sufficiently diluted for the salt not to crystallize. Wool is boiled for two hours in water, containing a fourth part of its weight of alum. Cotton and thread are soaked for at least twenty-four hours in warm concentrated solutions of alum, to which frequently some potass is added. It has hitherto been thought that in this operation the alum is decomposed, and that the alumina combines with the stuff, causing it thereby the more easily to take the colour when plunged into the dyeing bath; but the experiments we have made induce us to adopt a different opinion.

To determine the fact accurately, it was necessary to employ for these experiments only perfectly pure materials, completely deprived of the carbonat of lime, which is generally contained in considerable quantity. To separate the whole of this, we boiled the wool several successive times in a mattrass with weak muriatic acid; but in order to take up the last portions of this acid, we were obliged to make use of such large quantities of distilled water, that we were on the point of abandoning such tedious experiments, requiring so much time and patience, as well as the greatest care. The separation of all the muriatic acid from the first two hectogrammes of wool which we purified required 200 quarts of distilled water, at 100 degrees of heat (212 F.) divided into 20 successive operations, each occupying from seven to eight hours. When calcined and properly tried, it afforded neither lime nor muriatic acid.

One hundred grammes of this wool were alumed with the same care which had been taken with the silk. It was afterwards washed twenty times, employing six quarts of distilled water, heated to an hundred degrees, for each washing. Immediately after the aluming, this wool took a very deep colour, whilst, after the last washing, it would not take any more colour in the dyeing bath than some of the same wool which had never been alumed. These experiments convinced us, that the substance which had been fixed in the wool by aluming, and had caused it to receive so deep a colour in the first dyeing, had now been carried off by the water. The alum bath, when evaporated, afforded us, in the state of crystals, two-thirds of the quantity of alum we had originally employed; very nearly the whole of the remaining third part was obtained from the residue of the bath, in an uncrystallized state, and from the washings of the wool. This experiment was repeated several times, and always with the same result; but as this did not appear to us so decisive as the experiment upon silk, on account of the difficulty of separating the animal matter from the last portions of the alum bath, we alumed some wool in the cold, as we had done with the silk, being persuaded that in this case the bath would not sensibly dissolve this substance.

We alumed in the cold some clean wool with all the precaution observed with the silk, and we obtained from the bath and the washings the alum employed in the operation, with a loss only of $\frac{1}{400}$ part; we were therefore assured, that in the aluming of all animal substances, the alum combines entirely with them, without undergoing any decomposition, and that it forms with them combinations more or less soluble, which have a great affinity for the colouring matters.

But though the analyses most decidedly demonstrate that in the aluming of all animal and vegetable substances, the alum combines with them without undergoing any decomposition; we thought it necessary to repeat the same experiments upon these substances in the state in which they are commonly met with in commerce, as we had done in their purified state. Wool, when impregnated with alum alone, always renders the bath turbid, which, upon cooling, throws down an abundant white precipitate, as has been observed by several chemists. Several analyses of this sediment, after being well washed, have constantly afforded us some sulphat of lime, saturated sulphat of alumina, and sometimes a little alumina. The bath contained a remarkable quantity of alum, of acidulated sulphat of potass, combined with a small proportion of animal matter. Upon the wool we found alum, and a very minute proportion of the precipitate. These experiments upon the sediment, formed in the alum bath, do not differ from those made by M. Berthollet; but this learned chemist not having examined the mother-waters, nor the alumed wool, has not given, as he himself says, a clear and precise explanation of the effects produced by alum and tartar in the operation of dyeing. These precipitates, obtained by treating common wool with alum, never take place with purified wool; and as these only differ from each other by the former containing some carbonat of lime, it was natural in this case to attribute to this substance the decomposition of a part of the alum.

We satisfied ourselves of this, by mixing in glass vessels solutions of alum in boiling water with different proportions of pure carbonat of lime. We always found the alum was decomposed by the carbonat of lime, and that, if a sufficient quantity was added, there remained no part of the aluminous salt in solution. The mother-waters contained very acid sulphat of potass, and the sediment was formed of sulphat of lime and acidulate sulphat of alumina and potass: whence it follows, that the property possessed by common wool of forming a precipitate in the alum bath, and rendering the fluid very acid, is in reality owing to the carbonat of lime it contains. The same result was obtained by aluming common wool five or six successive times in the same bath. But in order to arrive at a general solution of this question, it was necessary to ascertain the nature of the precipitates formed in the solution of alum, by different alkaline and earthy substances. We took, therefore, alums with base of potass, and with base of ammonia, which we treated with ammonia and carbonat of potass, so as to leave in the solution but a slight excess of alum. The mother-waters evaporated contained very acid sulphats of ammonia, of potass and ammonia, and of potass, according to the nature of the alum and of the precipitate employed. The sediment, which was acid sulphat of alumina and potass, or ammonia treated with sulphuric acid, afforded alum and acidulated sulphat of alumina; boiled afterwards a great number of times with distilled water, it was converted into alum, sulphat of potass, and pure alumina. There was always a greater quantity of acidulated sulphat of potass than of alum, even in the last washings.

Solutions of alum, treated at a boiling heat with pure alumina, were converted into a very acid sulphat of potass, and into acidulated sulphat of alumina and potass. These results do not at all correspond with those obtained by M. Vauquelin in his experiments upon the alums of commerce, for we have never been able to obtain the saturated sulphat of alumina and potass, spoken of by that celebrated chemist.

Thus all the alkaline and earthy substances mixed in suitable proportions with solutions of alum, converted that salt into acidulated sulphat of potass, or ammonia, and into insoluble acid sulphat of alumina and potass or ammonia, for which reason we have named it the acidulated sulphat instead of the saturated sulphat, the name it has borne until now. It is evident, that if too great a quantity of carbonat of lime be employed, and the same holds good with the carbonat of barytes and strontian, we shall only obtain alumina and the sulphats of potass, lime, barytes, or strontian. There remains no doubt, therefore, of the nature of the changes produced in the alum baths by the common wools, and of the prejudicial effects of alkalies in the baths intended for cottons; for the addition of these substances diminishes the quantity of alum, and even increases the acidity of the bath.

2. *Impregnation of vegetable and animal matters with acetat of alumina.*—Wool, silk, cotton, and thread, in the different states in which these substances are employed for dyeing, were treated with acetat of alumina, which combined entirely with them. But as in exposing them to the air, or to a temperature a little elevated, the mordant always loses a small quantity of acid, it follows that the combination formed upon the stuff is an acetat with excess of base; thus, by treating it with boiling water, it is converted into acidulated acetat of alumina, which is dissolved, and into alumina which cannot be carried off by the water.

3. *Action of acidulated tartrit of potass on wool.*—Purified wool was treated as in the former experiments with very pure cream of tartar, free from tartrit of lime, and formed directly by the tartaric acid and potass. This wool was washed a great number of times, until the last washing did not contain any of the principles which had been combined with it. The bath afforded by evaporation $\frac{3}{4}$ of the cream of tartar employed, or rather neutral tartrit of potass. The washings were very acid, and we obtained from them a small quantity of cream of tartar, and a very acid composition formed of tartarous acid and wool. These facts may be thought sufficiently to explain the phænomena which take place in impregnating wool with alum and tartar, since we already know from the experiments of M. Berthollet, that these two salts are not decomposed; and as we have shown that the wool combines completely with the alum, and that it acts upon the cream of tartar by separating the tartarous acid with which it unites in the most intimate manner.

4. *Action of alum and tartar upon wool.*—Before treating the wool with alum and cream of tartar, we made some trials of the reciprocal action of these two salts. We ascertained that water, at the temperature of 12° or 14°, (55 F.) holds in solution only $\frac{1}{130}$ part of its weight of cream of tartar, that boiling water dissolves $\frac{1}{30}$ of its weight, and that a mixture of equal parts of alum and cream of tartar dissolves in $\frac{3}{5}$ the quantity of water required to dissolve the salts separately at the same temperature. These results do not differ from those already obtained by M. Berthollet, who has shewn that alum has the property of increasing the solubility of cream of tartar.

If wool is alumed in the ordinary proportions, which are $\frac{1}{4}$ of the weight of the stuff of alum, and $\frac{1}{16}$ of cream of tartar, all the substances being perfectly pure, we obtained from the bath when evaporated, alum, cream of tartar, and a residue difficultly crystallizable, composed of tartrit of potass and an animal matter; the washings of the wool will give alum, a small quantity, scarcely appreciable, of cream of tartar, and a very acid combination, formed of a large quantity of tartarous acid, alum, and animal matter.

These experiments remove all uncertainty concerning many practical facts, which at present are only noticed by the dyer in a vague way, and point out to him the precise method of applying the mordants according to the nature of the colour he wishes to obtain. Indeed, since by making use of alum and tartar, the wool is impregnated with alum and a large quantity of tartarous acid, these two salts should never be employed together, except when the colour is susceptible of being heightened and rendered brighter by acids, as is the case with cochineal, madder, and kermes. On the contrary, alum should never be employed for wools intended to be dyed with woad or Brasil wood, the colour of which is easily altered or destroyed by acids. Among all the vegetable and animal substances, we have made choice of wool only for trial with alum and alum and tartar, because it is only with this substance these mordants are made use of in dyeing.

5. *On the action of acids, and of some salts employed as mordants upon wool.*—Although all researches hitherto made have been ineffectual to find a substitute for alum, we have, nevertheless, made trial of a great number of substances with wool, less, however, for the purpose of discovering the best mordants, than for determining the action of several substances, very soluble, and at the same time endowed with great powers. We boiled wool for two hours in water, in which were put small quantities of sulphuric, nitric, muriatic, and tartaric acids. In each instance, the wool, especially when combined with sulphuric acid, struck with cochineal and madder deeper colours than when impregnated with alum and tartar. No doubt, therefore, can be entertained of their superiority in similar cases; but of all the mordants we tried, there is not one which gives such bright colours as what are obtained by means of the acid tartrit of alumina (notwithstanding the opinion of M. Hausmann to the contrary). This salt would, in a great number of cases, be preferable to tartar and alum, if its price was not so much higher than theirs. Whilst we were occupied in enquiring with the greatest care into every thing relative to the nature and mode of combination of mordants with various stuffs, we did not forget to examine the several methods which have been adopted in all the workshops for a long time past, in order to ascertain if the proportions of alum and tartar, the most generally employed, were those the most suitable for the purpose, if the time employed for the alum bath was sufficient to impregnate the wool sufficiently, and if the exposure to the cool air afterwards, for several days, which is so generally thought necessary, is attended with the expected advantages.

Equal parts of the mordants, that is, half the weight of the stuff, produced no better effect than one-fourth; but between this quantity and one-twentieth part, the colours of cochineal, kermes, and madder, were weaker in proportion to the diminution of the quantity of the salts; whilst, on the contrary, the effects were reversed with woad and Brasil wood, so that in these last substances, the colour was deeper the more the salts were diminished. No difference could be observed in the colour whether the wools had been in the alum bath for two, four, or six hours; it is, therefore, useless to continue stuffs in the bath longer than two hours. Our experiments did not discover that there was any difference in the colour, whether the dyeing took place immediately after the aluming, or was protracted for some time, except only that wool impregnated with alum alone produced a deeper colour with woad, after having been exposed some time to a cool air, which we attributed to the separation of the acidulated sulphat of potass, this being carried off with the uncombined mordant in drying.

6. *Of the scarlet colour.*—Scarlet is that bright and shining colour which is produced in wool by treating it with tartar, cochineal, and a highly oxydized solution of tin. Before the discovery of this method, for which we are entirely indebted to Drebbel, those colours were called scarlet which are produced in woollen stuffs by kermes or cochineal, when alum and tartar are employed as mordants. These processes for obtaining this colour have long been known in the dyeing houses, yet no theoretic investigations have been made into the phænomena which take place when a solution of tin is used with cream of tartar and cochineal. Dr. Bancroft attempted to explain what passes in the formation of this colour; but as his opinion does not appear to be founded on any experiments, we considered the question as not at all determined by his labours. We have yet, therefore, to determine the chemical nature of the combination formed upon wool by cochineal, tartar, and a solution of tin, and to make known the result of our inquiries upon the colour of scarlet.

7. *Examination of the precipitate formed by the solution of tin, and the acidulated tartrit of potass.*—All the substances employed by us in our experiments were perfectly pure, and we constantly made use of glass vessels and distilled water. Eighty grammes of acidulated tartrit of potass dissolved in three kilogrammes, and five hectogrammes of distilled water, were macerated for two hours, at 100 degrees (212 F.) of heat, with one hundred and twenty-five grains of a solution of tin. The precipitate which we obtained was washed several times, and distilled in a small curved retort, the beak of which being plunged into lime water, there was disengaged a sensible quantity of carbonic acid. Proper re-agents indicated in other portions of it the presence of a great deal of tin and muriatic acid. Thus the cream of tartar and solution of tin are decomposed, and produce a precipitate, consisting of tartarous acid, and a great quantity of muriatic acid and tin. The mother-water contains tartrit of potass, acidulated tartrit, very acid muriat of tin, and a considerable portion of precipitate, held in solution by excess of muriatic acid.

Very pure white wool, treated with the ordinary proportions of solution of tin and cream of tartar employed in dyeing scarlet, was washed a great number of times in boiling water, which carried off all the substances combined with it. These washings, collected and evaporated, afforded us the same principles we had before obtained from the precipitate formed by the solution of tin and cream of tartar; we also examined, in the same way, the action of cochineal, and found no difference in the results. From these facts we are to a certainty convinced, that the fine scarlet colour is produced by the wool being combined with colouring matter, tartarous acid, muriatic acid, and peroxyd of tin. But we are mistaken, if we think the bath has no influence on the colour; for wool combined with the mordants we shall presently mention, and dyed with cochineal, never take the scarlet hue unless some acid be added, which causes the colour to pass from yellowish to red, and at length to a bright colour. This last experiment, in connexion with various others, proved to us that the wool is not coloured yellow by the combination it forms with the nitric acid in excess in the solution of tin, for this wool comes out perfectly white from all the boilings it undergoes with the tin, when no colouring matter is employed.

8. *Of tartrits of tin, and some other metallic solutions.*—The proofs we have already given of the formation of scarlet appear to us so decisive, that we should not have thought of increasing the number, had not the importance of the question induced us to extend further our labours on this subject.

We tried upon wool, in the usual proportions for dyeing scarlet, all the sulphats and muriats of antimony, bismuth, zinc, and arsenic. Some of these solutions afforded very agreeable colours, but very different from that we were seeking to obtain. We were more fortunate in our attempts with the tartrit of tin obtained from tartrit of potass and soda, and a highly oxydized muriat of tin. This salt dissolved in muriatic acid, and used in the operation of dyeing, afforded us a scarlet colour as beautiful and bright as those obtained by cream of tartar and a solution of tin. The tartrit of tin, also, dissolved in an excess of its own acid, produced very good effects; however, as this method would be more costly than the ordinary processes, it is best to employ the solution of this salt in muriatic acid. But before recommending this mordant to be used in the dye-houses, we intend to make trial of it in the large way, so as to determine precisely the expense of it, and what advantages will be obtained by its employment.

9. *Experiments upon the colour of scarlet and oxyds of tin.*—Scarlet, as we have already seen, is obtained by treating wool with determined proportions of cochineal, acidulated tartrit of potass, and a highly oxydized solution of tin. The operation of dyeing is divided into two parts: the first taking up an hour and a half, the latter half an hour; this division is necessary to produce a good colour, which would be weaker and more yellow if all the substances were mixed in the first operation, and applied to the wool for two hours. This circumstance is owing to the very acid state of the bath, which holds in solution a great part of the mordant, and of the colouring matter. We obtain the contrary effect when the mordants only are employed in the first operation, and the cochineal reserved for the second.

Pieces of very beautiful scarlet cloth, macerated in distilled water, at a boiling heat, gave out to the water a portion of their colour, and when the operation was finished, appeared only of a light flesh colour. The washings collected and evaporated were very acid, and contained, besides the colouring substance and animal matter, tartarous acid, muriatic acid, and oxyd of tin. Scarlet, therefore, as we have already shown, is a combination in some measure soluble, which in parting with a small quantity of acid changes its shade, and may, by repeated washings at elevated temperatures, and with a large bulk of fluid, be rendered completely colourless.

It results from the experiments related in this article:

1st. That in aluming all vegetable and animal substances, it is not the alumina which combines with them, but the entire alum; and that when these matters are not purified, the lime which they contain occasions a decomposition of a part of this mordant.

2. That all the alkaline and earthy bases, mixed with a solution of alum, decompose it, and convert it into acid sulphat of potass, and into an insoluble salt, less acid than alum, which may, by repeated washings, be converted into pure alumina, sulphat of potass, and alum.

3. That the acetat of alumina combines also in its entire state with silk, wool, cotton, and thread; that this compound retains its acid but feebly, and loses a portion of it by simple exposure to the air; and that it is then changed into acid acetat of alumina, which is carried off by water, and into alumina which remains upon the stuffs.

4. That alum and tartar are not decomposed, but that the solubility of the latter is increased by the mixture; and that in impregnating wools either with tartar, or alum and tartar, the tartar alone is decomposed, that the tartarous acid and alum combine with the stuff, and tartrit of potass remains in the bath.

5. That the most powerful acids have the property, when combined with wool, of fixing the colouring matters, a property possessed in a high degree by the acid tartrit of alumina.

6. That alum and tartar cannot be employed indifferently for all colours, and that their proportions must depend upon the nature of the colouring matter; that the time of aluming should not be more than two hours, and that the exposure of the stuffs in a moist place, after the mordants are applied, is of no utility in augmenting the intensity of their colour.

7. That highly oxydized tartrit of tin, dissolved in muriatic acid, may supply the place of cream of tartar and the solution of tin in dyeing scarlet.

8. Lastly, that these experiments furnish some useful hints for combining mordants with the stuffs to be dyed, and for improving several of the processes of dyeing.

WOOLER, a town in Northumberland, with a market on Thursday. In a plain near this town the Scots, under the command of earl Douglas, were defeated by lord Percy and earl March, on Holyrood day, 1402. The battle was so bloody, that it gave the name of Redriggs to the place where it was fought. Wooler is seated on the Till, near the Cheviot hills, 14 miles south of Berwick, and 318 N. by W. of London. Lon. 1. 46 W. Lat. 55. 34 N.

WOO'LFEL. *s.* (*wool* and *fel.*) Skin not stripped of the wool (*Davies*).

WOO'LLEN. *a.* (from *wool.*) Made of wool not finely dressed, and thence used likewise for any thing coarse (*Shakspeare. Bacon*).

WOO'LLEN. *s.* Cloth made of wool (*Hudibras*).

WOO'LLY. *a.* (from *wool.*) 1. Clothed with wool (*Shakspeare*). 2. Consisting of wool (*Dryden*). 3. Resembling wool (*Philips*).

WOO'LPACK. WOO'LSACK. *s.* (*wool*, *pack*, and *sack.*) 1. A bag of wool; a bundle of wool. 2. The seat of the judges in the house of lords (*Dryden*). 3. Any thing bulky without weight (*Cleaveland*).

WOOLSTON (Thomas), a famous deist, was born at Northampton in 1669, and educated at Sidney college, Cambridge. His first appearance as an author was in 1705, in a work, entitled the Old Apology for the Truth of the Christian Religion against the Jews and Gentiles revived. His Six Discourses on the Miracles of Christ occasioned a great number of books and pamphlets upon the subject, and raised a prosecution against him. At his trial in Guildhall, before the lord chief justice Raymond, he spoke several times himself, and urged that "he thought it very hard that he should be tried by a set of men, who, though otherwise very learned and worthy persons, were no more judges of the subjects on which he wrote, than he himself was a judge of the most intricate points of the law." He was, however, sentenced to suffer a year's imprisonment, and to pay a fine of 100l. Being unable to pay the fine, and to find securities for his future conduct, he obtained the liberty of the rules of the king's-bench. He died in 1733.

WOOLWICH, a town in Kent, with a market on Friday. It is of great note for being the most ancient military and naval arsenal in England, and for its royal dock-yard, where men of war have been built as early as the reign of Henry VIII. At the eastern part of the town is the royal arsenal, in which are vast magazines of great guns, mortars, bombs, balls, powder, and other warlike stores; a foundery, with three furnaces, for casting ordnance; and a laboratory, where fireworks and cartridges are made, and bombs, carcases, grenados, &c. charged for the public service. A little to the south of the arsenal are extensive artillery barracks, for the accommodation of the officers and privates: and a little further is a royal military academy, where the mathematics are taught and cadets instructed in the military art. Woolwich is seated on the Thames, which is here so deep that large ships may at all times ride with safety. The number of inhabitants in 1801 was 9826, and since that time they have more than doubled. Woolwich is eight miles east of London.

WORCESTER, a town of Massachusets, capital of Worcester county, and the largest inland town in New England. It has manufactures of pot and pearl-ash, cotton and linen goods, and some other articles. It is situate in a healthy vale, 45 miles W. by S. of Boston. Lon. 71. 55 W. Lat. 42. 20 N.

Worcester, a city and the capital of Worcestershire, and a bishop's see, with a market on Wednesday, Friday, and Saturday. It contains nine churches, beside the cathedral, and two more without the walls of the city; also meeting-houses for various sectaries as well as Roman catholics. Edgar's Tower, a strong portal, is part of its ancient castle; here are also three grammar-schools, seven hospitals, a public infirmary, and a well contrived quay. It is governed by a mayor, carries on a considerable trade in carpets and gloves, and has a large manufacture of elegant china-ware. In 1801 the number of inhabitant was 13,671. Here Cromwell, in 1651, obtained a victory over the Scotch army, which had marched into England to reinstate Charles II. who, after this defeat, escaped with great difficulty into France. Worcester is seated on the Severn, 36 miles N.N.E. of Bristol, and 111 W.N.W. of London. Lon. 2. 0 W. Lat. 52. 9 N.

WORCESTERSHIRE, a county of England, 30 miles long and 20 broad; bounded on the north by Shropshire and Staffordshire, east by Warwickshire, S.E. and south by Gloucestershire, and west by Herefordshire. It contains 431,360 acres: is divided into five hundreds, and 152 parishes; has one city and 11 market-towns; and sends nine members to parliament. The number of inhabitants in 1801 was 139,333, and in 1811 was 161,001. The soil in the vales and meadows is very rich, particularly the vale of Evesham, which is styled the granary of these parts. The hills have generally an easy ascent, except the Malvern hills in the S.W. part of the county, and feed large flocks of sheep. The other hills are the Licky, near Bromsgrove, toward the north; and the Bredon hills, toward the S.E. This county had formerly two large forests, but the iron and salt-works have in a manner destroyed them. Here is plenty of fruits of most sorts, especially pears, which are in many places found growing in the hedges. The chief commodities are coal, corn, hops, cloth, cheese, cider, perry, and salt. The principal rivers are the Severn, Teme or Tend, and Avon.

WORD. *s.* (ƿoꞃd, Saxon; *woord*, Dutch.) 1. A single part of speech (*Pope*). 2. A short discourse (*Tillotson*). 3. Talk; discourse (*Denham*). 4. Dispute; verbal contention (*Shakspeare*). 5. Language; oral expression (*Boyle*). 6. Promise (*Dryden*). 7. Signal; token; order (*Shakspeare*). 8. Account; tidings; message (*Prior*). 9. Declaration; purpose expressed (*Dryden*). 10. Affirmation (*Decay of Piety*). 11. Scripture; word of God (*Whitgift*). 12. The second person of the ever adorable Trinity. A scripture term (*Milton*).

Word, or Watch-word, in military affairs, is some peculiar word or sentence, by which the soldiers know and distinguish one another in the night, &c. and by which spies and designing persons are discovered. It is used also to prevent surprises. The word is given out in an army every night to the lieutenant, or major-general of the day, who gives it to the majors of the brigades, and they to the adjutants; who give it first to the field-officers, and afterwards to a serjeant of each company, who carry it to the subalterns. In garrisons it is given after the gate is shut to the town-major, who gives it to the adjutants, and they to the serjeants.

To Word. *v. n.* (from the noun.) To dispute (*L'Estrange.*)

To Word. *v. a.* To express in proper words (*Addison*).

WO'RDY. *a.* (from *word.*) Verbose; full of words (*Pope*).

WORE. The preterit of *wear.*

To WORK. *v. n.* preterit *worked*, or *wrought.* (ƿeoꞃcan, Saxon; *werken*, Dutch.) 1. To labour; to travail; to toil (*Shakspeare*). 2. To be in action; to be in motion (*Dryden*). 3. To act; to carry on operations (*Milton*). 4. To operate as a manufacturer (*Isaiah*). 5. To ferment (*Bacon*). 6. To operate; to have effect (*Clarendon*). 7. To obtain by diligence (*Shakspeare*). 8. To act internally; to operate as a purge, or other physic (*Grew*). 9. To act as on a subject (*Swift*). 10. To make way (*Milton*). 11. To be tossed or agitated (*Addison*).

To Work. *v. a.* 1. To labour; to manufacture; to form by labour (*Raleigh*). 2. To bring by action into any state (*Addison*). 3. To influence by successive impulses (*Bacon*). 4. To make by gradual labour, or continued violence (*Addison*). 5. To produce by labour; to effect (*Drummond*). 6. To manage in a state of motion; to put into motion (*Arbuthnot*). 7. To put to labour; to exert (*Addison*). 8. To embroider with a needle (*Spect.*). 9. *To* Work *out.* To effect by toil (*Addison*). 10. *To* Work *up.* To erase; to efface (*Dryden*). 11. To work up; to raise (*Atterbury*). 12. *To* Work *up.* To expend in any work, as materials.

Work. *s.* (ƿeoꞃc, Saxon; *werk,* Dutch.) 1. Toil; labour; employment (*Dryden*). 2. A state of labour (*Temple*). 3. Bungling attempt (*Stillingfleet*). 4. Flowers or embroidery of the needle (*Law*). 5. Any fabric or compages of art (*Pope*). 6. Action; feat; deed (*Hammond*). 7. Any thing made (*Donne*). 8. Operation (*Digby*). 9. Effect; consequence of agency (*Milton*). 10. Management; treatment (*Shakspeare*). 11. *To set on* Work. To employ; to engage (*Hooker.*)

Work. In the manage, to work a horse is to exercise him at pace, trot, or gallop, and ride him at the manage. To work a horse upon volts, or head and haunches in, or between two heels, is to passage him, or make him go sideways upon two parallel lines.

WO'RKER. *s.* (from *work.*) One that works (*South*).

WO'RKFELLOW. *s.* (*work* and *fellow.*) One engaged in the same work with another (*Romans*).

WORKHOUSE, a place where indigent, vagrant, and idle people are set to work, and supplied with food and clothing.

Workhouses are of two kinds, or at least are employed for two different purposes. Some are used as prisons for vagrants or sturdy beggars, who are there confined and compelled to labour for the benefit of the society which maintains them; whilst others, sometimes called poorhouses, are charitable asylums for such indigent persons as through age or infirmity are unable to support themselves by their own labour. The former kind of workhouse, when under proper management, may be made to serve the best of purposes; of the latter, we know none the management of which we entirely approve.

WO'RKINGDAY. *s.* (*work* and *day.*) Day on which labour is permitted; not the sabbath (*Shakspeare*).

WORKINGTON, a seaport in Cumberland, seated on the Derwent, over which is a stone bridge. From this port a large quantity of coal is exported. This was the landing-place of Mary queen of Scots, when she was driven to take refuge in England. In the neighbourhood is a large iron foundery. Workington is seven miles west of Cockermouth, and 307 north of London. Lon. 3. 35 W. Lat. 53. 42 N.

WO'RKMAN. *s.* (*work* and *man.*) An artificer; a maker of any thing (*Addison*).

WO'RKMANLY. *a.* (from *workman.*) Skilful; well-performed; workmanlike.

Wo'rkmanly. *ad.* Skilfully; in a manner becoming a workman (*Shakspeare*).

WO'RKMANSHIP. *s.* (from *workman.*) 1. Manufacture; something made by any one (*Tillotson*). 2. The skill of a worker; the degree of skill discovered in any manufacture (*Spenser*). 3. The art of working (*Woodward*).

WO'RKMASTER. *s.* (*work* and *master.*) The performer of any work (*Milton*).

WORKSOP, a town in Nottinghamshire, with a market on Wednesday. It is noted for a magnificent seat of the duke of Norfolk. Here was once an abbey, the gate of which remains, and the room over it is converted into a school. On the west side of the town is a circular hill, which was the site of a castle. Quantities of licorice are grown in its vicinity, which is also peculiarly remarkable for the number of noblemen's seats. The canal from the Trent to Chesterfield passes near this place. It is 24 miles north of Nottingham, and 146 north by west of London. Lon. 1. 0 W. Lat. 53. 20 N.

WO'RKWOMAN. *s.* (*work* and *woman.*) 1. A woman skilled in needlework (*Spenser*). 2. A woman that works for hire.

WO'RKYDAY. *s.* (corrupted from *workingday.*) The day not the sabbath (*Gay*).

WORLD. *s.* (ƿoꞃlꝺ, Saxon; *wereld,* Dut.) 1. *World* is the great collective idea of all bodies whatever (*Locke*). 2. System of beings. 3. The earth; the terraqueous globe (*Heylin*). 4. Present state of existence (*Shakspeare*). 5. A secular life (*Rogers*). 6. Public life; the public (*Shakspeare*). 7. Business of life; trouble of life (*Shakspeare*). 8. Great multitude (*Sanderson*). 9. Mankind; a hyperbolical expression for many: *all the world* is a favourite phrase, in French, for *many* (*Clarendon*). 10. Course of life (*Clarissa*). 11. Universal empire (*Prior*). 12. The manners of men; the practice of life (*Swift*). 13. Every thing that the world contains (*Law*). 14. A large tract of country; a wide compass of things (*Cowley*). 15. A collection of wonders; a wonder: obsolete (*Knolles*). 16. Time:

now only used in the phrase *World without end.* 17. *In the* World. In possibility (*Addison*). 18. *For all the* World. Exactly (*Sidney*).

WO'RLDLINESS. *s.* (from *worldly.*) Covetousness; addictedness to gain.

WO'RLDLING. *s.* (from *world.*) A mortal set upon profit (*Hooker*).

WO'RLDLY. *a.* (from *world.*) 1. Secular; relating to this life, in contradistinction to the life to come (*Atterbury*). 2. Bent upon this world; not attentive to a future state (*Milton*). 3. Human; common; belonging to the world (*Raleigh*).

Wo'rldly. *ad.* (from *world.*) With relation to the present life (*South*).

WORM, in gunnery, a screw of iron, to be fixed on the end of a rammer, to pull out the wad of a firelock, carabine, or pistol, being the same with the wad-hook, only the one is more proper for small arms, and the other for cannon.

Worm, in chemistry, is a long winding pipe, placed in a tub of water, to cool and condense the vapours in the distillation of spirits.

Worm (Blind or Slow). See Anguis.

Worm (Earth). See Lumbricus.

Worm (Glow). See Lampyris.

Worm (Silk). See Silk.

To Worm. *v. n.* (from the noun.) To work slowly, secretly, and gradually (*Herbert*).

To Worm. *v. a.* 1. To drive by slow and secret means, perhaps as by a screw (*Swift*). 2. To deprive a dog of something under his tongue, which is said to prevent him from running mad. See Worming.

Worm bark. See Geoffræa.

Worm grass (Perennial). See Spigelia.

Worm guinea. Dracunculus. A singular worm which insinuates itself under the skin, and creeps along the cellular membrane. It is peculiar to Africa and warm climates. See Filaria.

Worm ring. A species of herpes. See Herpes.

Worm seed. See Santonicum and Chenopodium.

WO'RMEATEN. *a.* (*worm* and *eaten.*) 1. Gnawed by worms (*Shakspeare*). 2. Old; worthless (*Donne*).

WORMING, an operation performed on puppies, under an ignorant supposition that it prevents their going mad; but in reality to cure them, as it generally does, of the disposition to gnaw every thing in their way. It consists in the removal of a small worm-like ligament, situated beneath the tongue; and the part being afterwards sore for some days, the animal is thus weaned of his mischievous habits.

WORMS, as a distinct class in zoology. See Vermes, Helminthology, and Zoology.

Worms for angling. See Angling.

Worms (Intestinal). See Invermination.

Worms (Petrified). These are one of the most common fossils that occur in marble and other rocks. In this form they are denominated *Helmintholithites*; and we have given various specimens of them in Nat. Hist. Pl. LXXX. LXXXIV. CLIV. CLXXV. CLXXX. CLXXXVIII.

Worms, an imperial city of Germany, in the circle of Upper Rhine, with an episcopal see, whose bishop is a prince of the empire. It is famous for a diet held in 1521, at which Luther assisted in person. The protestants have a church here, where Luther is represented as appearing at the diet. Worms is noted for an excellent wine, called our Lady's Milk. In the war of 1689, it was taken by the French, who almost reduced it to ashes; and it was again taken by them in 1794. It is seated on the west bank of the Rhine, 20 miles S.E. of Mentz, and 32 S.W. of Francfort. Lon. 8. 29 E. Lat. 49. 32 N.

WORMWOOD. See Absinthium vulgare and Artemisia.

WO'RMY. *a.* (from *worm.*) Full of worms (*Milton*).

WORN. The part. passive of *wear. Worn out,* is quite consumed (*Dryden*).

WO'RNIL. *s.* In the backs of cows in the summer are maggots generated, which in Essex they call *wornils* (*Derham*).

To WO'RRY. *v. a.* (ƿoꞃıᵹen, Saxon.) 1. To tear, or mangle, as a beast tears its prey (*King Charles*). 2. To harass or persecute brutally (*Swift*).

WORSE. *a.* The comparative of *bad,* (ƿıꞃꞅ, Saxon.) More bad; more ill (*Locke*).

Worse. *ad.* In a manner more bad (*Sh.*).

The Worse. *s.* (from the adjective.) 1. The loss; not the advantage; not the better (2 *Kings*). 2. Something less good (*Clarissa*).

To Worse. *v. a.* (from the adjective.) To put to disadvantage: not used (*Milton*).

WO'RSER. *a.* A barbarous word, formed by corrupting *worse* with the usual comparative termination (*Dryden*).

WO'RSHIP. (ƿeoꞃðꞅcype, Saxon.) 1. Dignity; eminence; excellence (*Psalms*). 2. A character of honour (*Shakspeare*). 3. A title of honour (*Dryden*). 4. A term of ironical respect (*Pope*). 5. Adoration; religious act of reverence (*Milton*). 6. Honour; respect; civil deference (*Luke*). 7. Idolatry of lovers: submissive respect (*Shakspeare*).

To Wo'rship. *v. a.* (from the noun.) 1. To adore; to honour or venerate with religious rites (*Milton*). 2. To respect; to honour; to treat with civil reverence (*Shakspeare*). 3. To honour with amorous respect (*Carew*).

To Wo'rship. *v. n.* To perform acts of adoration (1 *Kings*).

WO'RSHIPFUL. *a.* (*worship* and *full.*) 1. Claiming respect by any character or dignity (*South*). 2. A term of ironical respect.

WO'RSHIPFULLY. *ad.* Respectfully.

WO'RSHIPPER. *s.* (from *worship.*) Adorer; one who worships (*Addison*).

WORST. (the superlative of *bad,* formed from *worse.*) Most bad; most ill (*Locke*).

Worst. *s.* The most calamitous or wicked state; the utmost height or degree of any thing ill (*Dryden*).

To **Worst.** *v. a.* (from the adjective.) To defeat; to overthrow (*Suckling*).

WO'RSTED. *s.* (from *Worsted*, a town in Norfolk, famous for the woollen manufacture.) Woollen yarn; wool spun (*Pope*).

Worsted, a town in Norfolk, with a market on Saturday. It is noted for being the place where worsteds were first made. It is 12 miles north of Norwich, and 120 north-east of London. Lon. 1. 26 E. Lat. 52. 52 N.

WORT. *s.* (pıꞃꞇ, Saxon; *wort*, Dutch.) 1. Originally a general name for an herb; whence it still continues in many, as *liverwort, spleenwort*. 2. A plant of the cabbage kind. See Brassica.

Wort. An infusion of malt. In its medicinal use this has been found extremely serviceable in the cure of scurvy.

Dr. Macbride, in his very ingenious experimental essays, having laid down as a principle, "that the cure of the scurvy depends on the fermentative quality in the remedies made use of," was led to enquire after a substance capable of being preserved during a long sea voyage, and yet containing materials by which a fermentation might occasionally be excited in the bowels. Such an one appeared to him to be found in malt, which is well known to be the grain of barley, brought suddenly to a germinating state by heat and moisture, and then dried, whereby its saccharine principle is developed, and rendered easy of extraction by watery liquors. The sweet infusion of this he proposed to give as a dietetic article to scorbutic persons, expecting that it would ferment in their bowels, and give out its fixed air, by the antiseptic powers of which the strong tendency to putrefaction in this disease might be corrected.

It was some time before a fair trial of this proposed remedy could be obtained; and different reports were made concerning it. By some cases, however, published in a postscript of the second edition of the doctor's work in 1767, it appears that scorbutic complaints of the most dangerous kind have actually been cured at sea by the use of wort. Its general effects were to keep the patient's bowels open, and to prove highly nutritious and strengthening. It sometimes purged too much, but this effect was easily obviated by the tinctura thebaica. Other unquestionable cases of its success in this disease are to be seen in the London Medical Essays and Inquiries.

The use of wort has hence been adopted in other cases where a strong putrid disposition in the fluids appeared to prevail, as in cancerous and phagadenic ulcers; and instances are published in the fourth volume of the work above mentioned of its remarkable good effects in these cases.

As the efficacy of the malt infusion depends upon its producing changes in the whole mass of fluids, it is obvious that it must be taken in large quantities for a considerable length of time, and rather as an article of diet than medicine. From one to four pints daily have generally been directed. The proportion recommended in preparing it, is one measure of ground malt to three equal measures of boiling water. The mixture must be well stirred, and left to stand, covered, three or four hours. It should be made fresh every day.

To **WORTH**, or *Wurth*. *v. n.* (peoꞃðan, Sax.) To be. Now only retained in *wo worth*, or *wurth*; *wo be* (*Spenser*).

Worth, in the termination of the names of places comes from poꞃð, a court or farm, or poꞃðiᵹ, a street or road (*Gibson*).

Worth. *s.* (peoꞃð, Saxon.) 1. Price; value (*Woodward*). 2. Excellence; virtue (*Donne*). 3. Importance; valuable quality (*South*).

Worth. *a.* 1. Equal in price to; equal in value to (*Shakspeare*). 2. Deserving of (*Watts*). 3. Equal in possessions to (*Sandys*).

WO'RTHILY. *ad.* (from *worthy*). 1. Suitably; not below the rate of (*Ray*). 2. Deservedly; according to merit (*Dryden*). 3. Justly; not without cause (*South*).

WO'RTHINESS. *s.* (from *worthy*.) 1. Desert; merit (*Hooker*). 2. Excellence; dignity; virtue (*Holder*). 3. State of being worthy; quality of deserving (*Sidney*).

WO'RTHLESS. *a.* (from *worth*.) 1. Having no virtues, dignity, or excellence (*Shakspeare*). 2. Having no value (*Addison*).

WO'RTHLESSNESS. *s.* (from *worthless*.) Want of excellence; want of dignity; want of value (*More*).

WO'RTHY. *a.* (from *worth*.) 1. Deserving; such as merits (*Shakspeare*). 2. Valuable; noble; illustrious; having excellence or dignity (*Davies*). 3. Having worth; having virtue (*Digby*). 4. Suitable for any quality good or bad; equal in value; equal in dignity (*Dryden*). 5. Suitable to any thing bad (*Shakspeare*). 6. Deserving of ill (*Deuteronomy*).

Wo'rthy. *s.* (from the adjective.) A man laudable for any eminent quality, particularly for valour (*Tatler*).

To **Wo'rthy.** *v. a.* (from the adjective.) To render worthy; to aggrandise; to exult: not used (*Shakspeare*).

To **WOT.** *v. n.* (pıꞇan, Saxon.) To know; to be aware: obsolete (*Shakspeare*).

WOTTON (Sir Henry), a learned Englishman, born at Bocton-hall in Kent, in 1568. From Winchester school he was sent to Oxford; afterwards he set out on his travels, spent one year in France, three in Germany, and five in Italy. On his return to England his wit and politeness recommended him to the earl of Essex; but when his unfortunate patron was beheaded he went to Florence, and was received into the confidence of the grand duke of Tuscany, who having intercepted letters discovering a design upon the life of James VI. of Scotland, dispatched Wotton thither to give him notice of it. On the accession of James to the crown of England, Wotton was employed in many important embassies, particularly to Venice. About 1623 he was made provost of Eton college, which place he held till his death in 1639. His State of Christendom was published after his death. Also, Reliquiæ Wottonianæ; or, a Collection of Lives, Letters, Poems, with Characters of sundry Personages, and other incomparable Pieces of Language and Art. By the curious Pencil of the ever-memorable Sir Henry Wotton.

Wotton (William), an English divine of great learning, born at Wrentham in Suffolk, in 1666, of which place his father was rector. He had made so great a progress in classical learning, that before he was ten years of age he was admitted of Catherine-hall, Cambridge. In 1679 he took the degree of B.A. and afterwards obtained a fellowship in St. John's college. In 1691, bishop Lloyd gave him the sinecure of Llandrillo in Denbighshire, and the earl of Nottingham, to whom he was chaplain, presented him to the rectory of Middleton Keyns. In 1694 he published Reflections upon Ancient and Modern Learning; which work was followed in 1701 by the History of Rome, from the Death of Antoninus Pius, to the Death of Alexander Severus; for the use of the duke of Gloucester. As Dr. Wotton was totally void of œconomy, he was in 1714 obliged to retire to South Wales, and while there drew up Memoirs of the Cathedral Churches of St. David's and Landaff. He published other works of great learning, and died in 1726, aged 60.

Wotton Basset, a borough in Wiltshire, with a market on Friday. It sends two members to parliament, and is 30 miles north of Salisbury, and 89 west of London. Lon. 1. 54 W. Lat. 51. 31 N.

Wotton-under-Edge, a corporate town in Gloucestershire, with a market on Friday. The inhabitants are principally clothiers, and it is governed by a mayor. It is seated under the hills, 20 miles N.E. of Bristol, and 108 W.N.W. of London. Lon. 2. 11 W. Lat. 51. 40 N.

WOVE. The pret. and part. pass. of *weave*.

WO'VEN. The participle passive of *weave*.

WOULD. The preterit of *will*. 1. It is generally used as an auxiliary verb with an infinitive, to which it gives the force of the subjunctive mood (*Ray*). 2. Was or am resolved; I wish or wished to; I am or was willing (*Sidney*). 3. It is a familiar term for *wish to do*, or *to have* (*Shakspeare*). 4. It has the signification of *I wish*, or *I pray* (*Dryden*).

WO'ULDING. *s.* (from *would.*) Motion of desire; disposition to any thing; propension; inclination; incipient purpose (*Hammond*).

WOULFE'S APPARATUS, a very important and useful apparatus for chemical purposes, whose invention forms almost an era in the science. Before it was known the only vessels that chemists employed for distillations were either the alembic with its refrigeratory, or the retort with its receiver. The former was devoted almost exclusively to the distillation of those fluids which are readily condensed by cooling, and are not attended with the production of much permanently elastic or mal-condensible vapour, such as water impregnated with the aromatic parts of vegetables, alcohol, &c.; whilst the retort, with its glass receiver, was reserved for the distillation of the stronger acids, and other substances accompanied by much uncondensible vapour. But here a great inconvenience subsisted, for either enormously large receivers were required, or a considerable number of them with double openings, like aludels, or else it was necessary to avoid the rupture of the vessels by having a small hole, which could be opened occasionally, when the quantity of confined vapour was judged to be too great. But even this did not answer the purpose of the chemist completely; for much of the vapour given out during these distillations is only uncondensible for want of finding water, or some other substance with which it may unite, so that a large proportion of the products of distillation were totally wasted. In experiments of research, too, the old apparatus was peculiarly defective, as the gaseous products, which are often by far the most interesting, were entirely lost.

Glauber was aware of many of these defects, and hence as early as about the year 1655, gave a very ingenious method of substituting to the series of perpendicular aludel-shaped receivers, a lateral series of plain stone or earthen jars, each connected with the other by earthen tubes bent at right angles, and the cover of each jar having two holes, one to receive the tube bringing the vapour from the adjoining jar or the retort, and the other for the passage of the tube which conveyed the excess of this vapour into the next in succession. This arrangement is precisely that of the bottles of the modern Woulfe's apparatus, but the jars which Glauber used were empty, and set in a larger vessel full of cold water, so as to be kept always cool.

The great improvement to this apparatus by the late Mr. Woulfe consisted in filling these lateral vessels with water, into which he dipped the extremity of each tube, bringing into it the uncondensed part of the vapour, by which means a vast quantity of product is saved, which even in Glauber's method could not be ultimately detained; so that by having a sufficient bulk of water in one or more of these lateral vessels, no part of the product can escape detention except that which cannot condense, either alone or when passed through any liquid. Even this too may readily be saved by adding to the last in the series of bottles a curved tube, which conveys the gass to the pneumatic trough or gazometer, where its nature may be examined.

Instead of having the mouths of the lateral bottles wide enough to admit both tubes (that is, the one which brings the vapour into the bottle, and the other which conveys the uncondensed part of it out of the bottle), it is a great improvement to have the bottles blown with two openings, and sometimes even with a third for particular purposes.

The essential parts of this apparatus, therefore, are a retort or any other vessel in which the materials are heated; a receiver to detain that part of the product which is condensible by mere cooling; and a bent tube proceeding from the receiver to the bottom of a bottle placed by its side, and full, or nearly so, with water or any other liquid. If more than one bottle be employed, these are ranged side by side, and connected with each other by bent tubes, each of which proceeds from the top of the bottle immediately preceding, and plunges into the bottom of the liquid of the bottle next in order. Every part of the apparatus is air-tight except the end furthest from the retort, so that every particle of vapour or gass has to traverse the whole series of vessels, and to pass through the liquid in every one of the bottles, before it escapes into the air; and thus, if at all condensible by the liquid used, it can hardly escape condensation.

Another part, however, is necessary to the perfection of this apparatus. When the distillation is nearly over, and the production of gass or vapour slackens or ceases altogether, a degree of vacuum is always made in the retort, owing to the cooling of the elastic vapour which it contains. This circumstance causes a similar vacuum in the receiver, to fill which a strong absorption or suction of the liquid takes place from the first bottle back into the receiver through the bent tube that dips into the bottle. This again causes an equal vacuum in the first bottle, which is filled by absorption of fluid from the second bottle through the communicating tube, and so on to the last; so that the moment absorption begins a retrograde motion takes place through the whole apparatus. The inconvenience of this is the mixture of the products that ensues; for if, for example, the distillation of nitric acid be the process, after the materials in the retort have given out every thing, the receiver, which was at first left empty, contains the concentrated acid, and the bottles contain water strongly impregnated with nitrous vapour. But the moment that absorption begins the dilute liquor of the first bottle is poured into the receiver, which makes it impossible to collect any concentrated acid unless the operator is on the watch to loosen the luting between the retort and the receiver the moment he perceives the liquor to rise in the bent tube between the receiver and the first bottle. To remedy this defect several contrivances have been adopted. The inventor, Mr. Woulfe, who was fully aware of it, employed an intermediate vessel between the receiver and the first water-bottle, which was left empty, and into which the bent tube from the receiver was immersed only to a short depth, in consequence of which, when the absorption took place, the liquor from the first bottle was poured into this intermediate bottle, and went no further. This contrivance is very useful where only a single water-bottle is employed, but when more than one is used it is obvious that the liquors contained in them must mingle, though they all keep separate from the contents of the receiver: for when any of the liquor of the first bottle passes into the intermediate bottle an equivalent portion of the second must pour into the first bottle, of the third into the second, and so on. Another contrivance, therefore, and which is now generally adopted, is to prevent the absorption altogether by letting in the external air to fill the partial vacuum. This is done either by inserting straight capillary tubes into the different vessels, or by a curved tube of particular construction invented by Welter, and called Welter's tubes or tubes of safety.

There are various other modes by which Woulfe's apparatus has been improved, and other forms under which it has been modified. But we must content ourselves with laying dow the principle, and describing its usual forms.

WOUND. *s.* (ƿunꝺ, Saxon; *wonde*, Dutch.) A hurt given by violence. See Surgery.

To Wound. *v. a.* (from the noun.) To hurt by violence (*Shakspeare*).

Wound. The pret. and part. pass. of *wind*.

WO'UNDLESS. *a.* (from *wound*.) Exempt from wounds.

WOUNDWORT. See Achillea.

WOUTERS (Francis), or Wauter, a Dutch painter of landscapes and history, was born in 1614, and brought up under Reubens. The emperor Ferdinand III. appointed him his principal painter. He was also painter to Charles II. of England, when prince of Wales. He died in 1659.

WOUWERMANS (Philip), an excellent Dutch landscape painter, was born at Haerlem, in 1620. He generally enriched his landscapes with huntings, encampments, or other subjects where horses could be introduced, which he pourtrayed better than any painter of his time.—He had two brothers, Peter and John, both distinguished artists in the same way as Philip, though not equal to him. He died in 1668.

WOX. Woxe. The preterit of *wax*. Became. Obsolete (*Spenser*).

WO'XEN. The participle of *To wax*. (*Spenser*).

WRACK. *s.* (*wrack*, Dutch; ƿꞃæcce, Sax.) 1. Destruction of a ship; wreck (*Dryden*). 2. Ruin; destruction (*Milton*).

To Wrack. *v. a.* (from the noun.) 1. To destroy in the water; to wreck. 2. It seems in *Milton* to mean, to rock, to shake. 3. To torture; to torment; to rack (*Cowley*).

To WRA'NGLE. *v. n.* (from *worangheseur*, Dutch.) To dispute peevishly; to quarrel perversely; to altercate; to squabble (*Pope*).

Wra'ngle. *s.* (from the verb.) A quarrel; a perverse dispute (*Swift*).

WRA'NGLER. *s.* (from *wrangle*.) A perverse, peevish, disputative man (*Herbert*).

Wrangler (Senior), the title given at Cambridge to the under-graduate who distinguishes himself most in the examination for the bachelor's degree. See University.

To WRAP. *v. a.* preterit and participle pass. *wrapped* or *wrapt*. (hƿeoꞃpian, Saxon, to turn; *wreffier*, Danish.) 1. To roll together; to complicate (*Fairfax*). 2. To involve; to cover with something rolled or thrown round (*Dryden*). 3. To comprise; to contain (*Addison*). 4. *To* Wrap *up*. To involve totally (*Knolles*). 5. It is often corruptly written for *rap* or *rapt*, from *rapio*, Latin.

WRA'PPER. *s.* (from *wrap*.) 1. One that wraps. 2. That in which any thing is wrapped (*Addison*).

WRASSE, in ichthyology. See Labrus.

WRATH. *s.* (ƿꞃað, Saxon; *wreed*, cruel, Dutch.) Anger; fury; rage (*Spenser*).

WRA'THFUL. *a.* (*wrath* and *full*.) Angry; furious; raging (*Sprat*).

WRA'THFULLY. *ad.* (from *wrathful.*) Furiously; passionately (*Shakspeare*).

WRA'THLESS. *a.* (from *wrath.*) Free from anger (*Waller*).

To WREAK. *v. a.* old preterit and participle passive *wroke* and *wroken*, now *wreaked.* (ƿꞃæcan, Saxon; *wrecken*, Dutch.) 1. To revenge: not used (*Fairfax*). 2. To execute any violent design (*Smith*).

WREAK. *s.* (from the verb.) Obsolete. 1. Revenge; vengeance (*Spenser*). 2. Passion; furious fit (*Shakspeare*).

WRE'AKFUL. *a.* (from *wreak.*) Revengeful; angry: not in use (*Chapman*).

WREATH. *s.* (ƿꞃeoð, Saxon.) 1. Any thing curled or twisted (*Smith*). 2. A garland; a chaplet (*Roscommon*).

To WREATH. *v. a.* pret. *wreathed;* part. pass. *wreathed, wreathen.* (from the noun.) 1. To curl; to twist; to convolve (*Bacon*). 2. To writhe (*Gay*). 3. To interweave; to entwine one in another (*South*). 4. To encircle as a garland (*Prior*). 5. To encircle as with a garland; to dress in a garland (*Dryden*).

To WREATH. *v. n.* To be interwoven; to be intertwined (*Dryden*).

WREATH, in helminthology. See TURBO.

WRE'ATHY. *a.* (from *wreath.*) Spiral; curled; twisted (*Brown*).

WRECK. *s.* (ƿꞃæcce, Saxon, a miserable person; *wracke*, Dutch, a ship broken.) 1. Destruction by being driven on rocks or shallows at sea; destruction by sea (*Daniel*). 2. Dissolution by violence (*Milton*). 3. Ruin; destruction (*Shakspeare*). 4. The thing wrecked.

In order to constitute a legal wreck, the goods must come to land. If they continue at sea, the law distinguishes them by the barbarous and uncouth appellations of *jetsam, flotsam,* and *ligan.* Jetsam is where goods are cast into the sea, and there sink and remain under water: flotsam is where they continue swimming on the surface of the waves: ligan is where they are sunk in the sea, but tied to a cork or buoy, in order to be found again. These are also the king's, if no owner appears to claim them; but if any owner appears, he is entitled to recover the possession. For even if they be cast overboard, without any mark or buoy, in order to lighten the ship, the owner is not by this act of necessity construed to have renounced his property: much less can things ligan be supposed to be abandoned, since the owner has done all in his power to assert and retain his property. These three are therefore accounted so far a distinct thing from the former, that by the king's grant to a man of wrecks, things jetsam, flotsam, and ligan, will not pass.

Wrecks, in their legal acceptation, are at present not very frequent: for if any goods come to land, it rarely happens, since the improvement of commerce, navigation, and correspondence, that the owner is not able to assert his property within the year and day limited by law. And in order to preserve this property entire for him, and if possible to prevent wrecks at all, our laws have made many very humane regulations; in a spirit quite opposite to those savage laws which formerly prevailed in all the northern regions of Europe, and a few years ago were still said to subsist on the coasts of the Baltic sea, permitting the inhabitants to seize on whatever they could get as lawful prize; or, as an author of their own expresses it, "*in naufragorum miseria et calamitate tanquam vultures ad prædam currere.*" For by the statute 27 Edw. III. c. 13. if any ship be lost on the shore, and the goods come to land (which cannot, says the statute, be called wreck), they shall be presently delivered to the merchants, paying only a reasonable reward to those that saved and preserved them, which is entitled salvage. Also by the common law, if any persons (other than the sheriff) take any goods so cast on shore, which are not legal wreck, the owners might have a commission to enquire and find them out, and compel them to make restitution. And by 12 Ann. statute 2. c. 18. confirmed by 4 Geo. I. c. 12. in order to assist the distressed, and prevent the scandalous illegal practices on some of our sea coasts (too similar to those on the Baltic), it is enacted, that all head officers and others of towns near the sea, shall, upon application made to them, summon as many hands as are necessary, and send them to the relief of any ship in distress, on forfeiture of 100*l.* and, in case of assistance given, salvage shall be paid by the owners, to be assessed by three neighbouring justices. All persons that secrete any goods shall forfeit their treble value; and if they wilfully do any act whereby the ship is lost or destroyed, by making holes in her, stealing her pumps, or otherwise, they are guilty of felony without benefit of clergy. Lastly, by the statute of 26 Geo. II. c. 19. plundering any vessel, either in distress or wrecked, and whether any living creature be on board or not (for whether wreck or otherwise, it is clearly not the property of the populace), such plundering or preventing the escape of any person that endeavours to save his life, or wounding him with intent to destroy him, or putting out false lights in order to bring any vessel into danger, are all declared to be capital felonies; in like manner as the destroying of trees, steeples, or other stated sea-marks, is punished by the statute 8 Eliz. c. 13. with a forfeiture of 100*l.* or outlawry. Moreover by the statute of Geo. II. pilfering any goods cast ashore is declared to be petty larceny; and many other salutary regulations are made, for the more effectually preserving ships of any nation in distress.

By the civil law, to destroy persons shipwrecked, or prevent their saving the ship, is capital. And to steal even a plank from a vessel in distress or wrecked, makes the party liable to answer for the whole ship and cargo. The laws also of the Wisigoths, and the most early Neapolitan constitutions, punished with the utmost severity all those who neglected to assist any ship in distress, or plundered any goods cast on shore.

To Wreck. *v. a.* (from the noun.) 1. To destroy by dashing on rocks or sands (*Spenser*). 2. To ruin (*Daniel*)

To Wreck. *v. n.* To suffer wreck.

WREN (Sir Christopher), in biography, a great philosopher and mathematician, and one of the most learned and eminent architects of his age, was the son of the Rev. Christopher Wren, dean of Windsor, and was born at Knoyle, in Wiltshire, in 1632. He studied at Wadham college, Oxford, where he took the degree of master of arts, in 1653, and was chosen fellow of All Souls college there. Soon after he became one of that ingenious and learned society, who then met at Oxford for the improvement of natural and experimental philosophy, and which at length produced the Royal Society.

When very young he discovered a surprising genius for the mathematics, in which science he made great advances before he was sixteen years of age. In 1657 he was made professor of astronomy in Gresham college, London; and his lectures, which were much frequented, tended greatly to the promotion of real knowledge. He proposed several methods by which to account for the shadows returning backward ten degrees on the dial of king Ahaz, by the laws of nature. One subject of his lectures was upon telescopes, to the improvement of which he had greatly contributed: another was on certain properties of the air, and the barometer. In the year 1658 he read a description of the body and different phases of the planet Saturn; which subject he proposed to investigate, while his colleague, Mr. Rooke, then professor of geometry, was carrying on his observations upon the satellites of Jupiter. The same year he communicated some demonstrations concerning cycloids to Dr. Wallis, which were afterwards published by the doctor at the end of his treatise upon that subject. About that time also, he resolved the problem proposed by Pascal, under the feigned name of John de Montford, to all the English mathematicians; and returned another to the mathematicians in France, formerly proposed by Kepler, and then resolved likewise by himself, to which they never gave any solution. In 1660, he invented a method for the construction of solar eclipses; and in the latter part of the same year, he, with ten other gentlemen, formed themselves into a society, to meet weekly, for the improvement of natural and experimental philosophy; being the foundation of the Royal Society. In the beginning of 1661, he was chosen Savilian professor of astronomy at Oxford, in the room of Dr. Seth Ward; where he was the same year created doctor of laws.

Among his other accomplishments, Dr. Wren had gained so considerable a skill in architecture, that he was sent for the same year from Oxford, by order of king Charles the Second, to assist sir John Denham, surveyor-general of the works. In 1663 he was chosen fellow of the Royal Society, being one of those who were first appointed by the council after the grant of their charter. Not long after, it being expected that the king would make the society a visit, the lord Brounker, then president, by a letter, requested the advice of Dr. Wren, concerning the experiments which might be most proper on that occasion: to whom the doctor recommended principally the Torricellian experiment, and the weather needle, as being not mere amusements, but useful, and also neat in their operation.

In 1665 he travelled into France, to examine the most beautiful edifices and curious mechanical works there, when he made many useful observations. Upon his return home, he was appointed architect, and one of the commissioners for repairing St. Paul's cathedral. Within a few days after the fire of London, 1666, he drew a plan for a new city, and presented it to the king; but it was not approved by the parliament. In this model the chief streets were to cross each other at right angles, with lesser streets between them; the churches, public buildings, &c. so disposed as not to interfere with the streets, and four piazzas placed at proper distances.

Upon the death of sir John Denham, in 1668, he succeeded him in the office of surveyor-general of the king's works, and from this time he had the direction of a great many public edifices, by which he acquired the highest reputation. He built the magnificent theatre at Oxford, St. Paul's cathedral, the monument, the modern part of Hampton court, Chelsea college, one of the wings of Greenwich hospital, the churches of St. Stephen Walbrook and St. Mary-le-Bow, with upwards of sixty other churches and public works, which that dreadful fire made necessary. In the management of which business he was assisted in the measurements, and laying out of private property, by the ingenious Dr. Robert Hook. The variety of business in which he was by this means engaged requiring his constant attendance and concern, he resigned his Savilian professorship at Oxford in 1673, and the year following he received from the king the honour of knighthood. He was one of the commissioners who, on the motion of sir Jonas Moore, surveyor-general of the ordnance, had been appointed to find out a proper place for erecting an observatory, and he proposed Greenwich, which was approved of; the foundation stone of which was laid the tenth of August, 1675, and the building was presently finished, under the direction of sir Jonas, with the advice and assistance of sir Christopher.

In 1680 he was chosen president of the Royal Society; afterwards appointed architect and commissioner of Chelsea college; and in 1684, principal officer or comptroller of the works in Windsor castle. Sir Christopher sat twice in parliament, as a representative for two different boroughs. While he continued surveyor-general, his residence was in Scotland-yard; but after his removal from that office, in 1718, he lived in St. James's-street, Westminster. He died the twenty-fifth of February, 1723, at ninety-one years of age; and he was interred with great solemnity in St. Paul's cathedral, in the vault under the south wing of the choir, near the east end.

Wren, in ornithology. See Motacilla.

To WRENCH. *v. a.* (ƿꞃıᵹan, Saxon; *wrenghen*, Dutch.) 1. To pull by violence; to wrest; to force (*Bacon*). 2. To sprain; to distort (*Swift*).

Wrench. *s.* (from the verb.) 1. A violent pull or twist. 2. A sprain (*Locke*).

To WREST. *v. a.* (ƿꞃæꞅꞇan, Saxon.) 1. To twist by violence; to extort by writhing or force (*Addison*). 2. To distort; to writhe; to force (*Hooker*).

Wrest. *s.* (from the verb.) Distortion; violence (*Hooker*).

WRE'STER. *s.* (from *wrest.*) He who wrests.

To WRE'STLE. *v. n.* (from *wrest.*) 1. To contend who shall throw the other down (*Shakspeare*). 2. To struggle; to contend (*Clarendon*)

WRE'STLER. *s.* (from *wrestle.*) 1. One who wrestles; one who professes the athletic art (*Denham*). 2. One who contends in wrestling (*Waller*).

WRETCH. *s.* (ƿꞃecca, Saxon.) 1. A miserable mortal (*Prior*). 2. A worthless sorry creature (*Sidney*). 3. It is used by way of slight, or ironical pity, or contempt (*Drayton*).

WRE'TCHED. *a.* (from *wretch.*) 1. Miserable; unhappy (*Dryden*). 2. Calamitous; afflictive. 3. Sorry; pitiful; paltry; worthless (*Hooker*). 4. Despicable; hatefully contemptible (*Sidney*).

WRE'TCHEDLY. *ad.* (from *wretched.*) 1. Miserably; unhappily (*Clarendon*). 2. Meanly; despicably (*South*).

WRE'TCHEDNESS. *s.* (from *wretched.*) 1. Misery; unhappiness; afflicted state (*Raleigh*). 2. Pitifulness; despicableness.

WRE'TCHLESS. *a.* Careless; mindless; heedless: properly *rechless* (*Hammond*).

WREXHAM, a town in Denbighshire, with a market on Monday and Thursday. It is the most populous town in all North Wales, and a place of considerable traffic. It retains the language and appearance of an English town, and has a Gothic church, the lofty steeple of which is the boast of this part of the country. Near Wrexham is a large foundery for cannon and other articles. It is seated on a river, which falls into the Dee, in a country affording plenty of lead, 13 miles S. by W. of Chester, and 188 N.W. of London. Lon. 3. 10 W. Lat. 53. 2 N.

To WRI'GGLE. *v. n.* (ƿꞃıᵹan, Saxon; *ruggelen*, Dutch.) To move to and fro with short motions (*Swift*).

To Wri'ggle. *v. a.* To put in a quick reciprocating motion (*Hudibras*).

WRIGHT. *s.* (ƿꞃihꞇa, ƿẏꞃhꞇa, Saxon.) A workman; an artificer; a maker; a manufacturer (*Cheyne*).

To WRING. *v. a.* preterit and part. pass. *wringed* and *wrung.* (ƿꞃinᵹan, Saxon.) 1. To twist; to turn round with violence (*Leviticus*). 2. To force by contortion (*Wotton*). 3. To squeeze; to press (*Shakspeare*). 4. To writhe (*Shakspeare*). 5. To pinch (*Clarendon*). 6. To force by violence; to extort (*Milton*). 7. To harass; to distress; to torture (*Roscommon*). 8. To distort; to turn to a wrong purpose (*Ascham*). 9. To persecute with extortion (*Hayward*).

To Wring. *v. n.* To writhe with anguish (*Shakspeare*).

WRI'NGER. *s.* (from *wring.*) One who squeezes the water out of clothes (*Shakspeare*).

WRI'NKLE. *s.* (ƿꞃincle, Saxon; *wrinkel*, Dutch.) 1. Corrugation or furrow of the skin or the face (*Howel*). 2. Rumple of cloth. 3. Any roughness (*Dryden*).

To Wri'nkle. *v. a* (ƿꞃinclian, Saxon.) 1. To corrugate; to contract into furrows (*Bacon*). 2. To make rough or uneven (*Milton*).

WRINTON, a town in Somersetshire, with a market on Tuesday. The most noted mines for calamine are in its neighbourhood. It is the birthplace of Mr. Locke, and seated among the Mendip-hills, 11 miles N.N.W. of Wells, and 125 W. of London. Lon. 2. 38 W. Lat. 51. 21 N.

WRIST. *s.* (ƿẏꞃꞅꞇ, Saxon.) The joint by which the hand is joined to the arm (*Brown*).

Wrist, in the manage. The bridle-wrist is that of the left hand. A horseman's wrist and his elbow should be equally raised; and the wrist should be two or three fingers above the pommel of the saddle. To ride a horse from hand to hand, i.e. to change hands upon one tread, we need only to turn the wrist to that side we would have the horse turn to, without advancing the hand at all. But if the horse stop, the use of both legs is required.

WRI'STBAND. *s.* (*wrist* and *band.*) The fastening of the shirt at the hand.

WRIT. *s.* (from *write.*) 1. Any thing written; scripture (*Knolles*). 2. A judicial process, by which any one is summoned as an offender (*Prior*). 3. A legal instrument (*Ayliffe*).

Writ. The preterit of *write.*

Writ, is the king's precept, by which any thing is commanded touching a suit or action; as the defendant or tenant to be summoned, a distress to be taken, a disseisin to be redressed, &c. And these writs are diversly divided; some in respect of their order, or manner of granting, are termed original, and some judicial.

Original writs are those that are sent out for the summoning of the defendant in a personal, or the tenant in a real action, before the suit begins, or rather to begin the suit.

The judicial writs are those which are sent out by order of the court where the cause depends, upon occasion after the suit is begun.

Original writs are issued out in the court of chancery, for the summoning a defendant to appear, and are granted before the suit is begun, to begin the same: and judicial writs issue out of the court where the original is returned, after the suit began. The original bear date in the name of the king; but the judicial writs bear teste in the name of the chief justice.

WRIT OF ASSISTANCE, issues out of the exchequer, to authorize any person to take a constable, or other public officer, to seize goods or merchandize prohibited and uncustomed.

It is also a writ issuing out of the chancery to give a possession.

WRIT OF INQUIRY OF DAMAGES, a judicial writ that issues out to the sheriff, upon a judgment by default, in action of the case, covenant, trespass, trover, &c. commanding him to summon a jury to inquire what damages the plaintiff has sustained occasione præmissiorum; and when this is returned with the inquisition, the rule for judgment is given upon it: and if nothing is said to the contrary, judgment is thereupon entered. 2 Lill. Abr. 721.

A writ of inquiry of damages is a mere inquest of office, to inform the conscience of the court; who, if they please, may themselves assess the damages. And it is accordingly the practice, in actions upon promissory notes and bills of exchange, instead of executing a writ of inquiry, to apply to the court for a rule to shew cause why it should not be referred to the master to see what is due, &c. which rule is made absolute, unless good cause is shewn to the contrary.

To WRITE. *v. a.* preterit *writ*, or *wrote*; part. pass. *written*, *writ*, or *wrote*. (ƿꞃıꞇan, aƿꞃıꞇan, Saxon.) 1. To express by means of letters (*Shakspeare*). 2. To engrave; to impress (*Locke*). 3. To produce, as an author (*Glanville*). 4. To tell by letter (*Prior*).

To WRITE. *v. n.* 1. To perform the act of writing (*Shakspeare*). 2. To play the author (*Addison*). 3. To tell in books (*Shakspeare*). 4. To send letters (1 *Esdras*). 5. To call one's self; to be entitled; to use the style of (*Ben Jonson*). 6. To compose; to form compositions (*Felton*).

WRITER. *s.* (from *write.*) 1. One who practises the art of writing. 2. An author (*Swift*).

WRITER OF THE TALLIES, an officer of the exchequer, being clerk to the auditor of the receipt, who writes upon the tallies the whole letters of the teller's bill.

To WRITHE. *v. a.* (ƿꞃıðan, Saxon.) 1. To distort; to deform with distortion (*Shak.*). 2. To twist with violence (*Addison*). 3. To wrest; to force by violence; to torture; to distort (*Hooker*). 4. To twist (*Dryden*).

To WRITHE. *v. n.* To be convolved with agony or torture (*Addison*).

WRITHED. Contortuplicatus. In botany, twisted very much. See TORTUOUS. This word is sometimes confounded with *wreathed*, which is of very different import.

WRITING. *s.* (from *writ.*) 1. A legal instrument; as the *writings* of an estate (*Seller*). 2. A composure; a book (*Hooker*). 3. A written paper of any kind (*Shakspeare*).

WRITING, the art or act of signifying and conveying our ideas to others, by letters or characters visible to the eye. See COMPOSITION, GRAMMAR, and LANGUAGE. The most ancient remains of writing, which have been transmitted to us, are upon hard substances, such as stones and metals, which were used by the ancients for edicts and matters of public notoriety: the decalogue was written on two tables of stone; but this practice was not peculiar to the Jews, for it was used by most of the eastern nations, as well as by the Greeks and Romans; and therefore the ridicule which Voltaire attempts to cast upon that part of the book of Genesis, where the people are commanded to write the law on stones, is absurd; for what is there said by no means implies that other materials might not be used on common occasions. The laws penal, civil, and ceremonial, among the Greeks, were engraven on tables of brass, which were called Cyrbes.

We find that wood was also used for writing on in different countries. In the Sloanian library (No. 4852.) are six specimens of Kufic writing, on boards about two feet in length, and six inches in depth. The Chinese, before the invention of paper, wrote or engraved with an iron tool upon thin boards or on bamboo. Pliny says, that table books of wood were in use before the time of Homer. These table books were called by the Romans pugillares. The wood was cut into thin slices, and finely plained and polished. The writing was at first upon the bare wood, with an iron instrument called a style. In later times these tables were usually waxed over, and written upon with that instrument. The matter written upon the tables which were thus waxed over was easily effaced, and by smoothing the wax new matter might be substituted in the place of what had been written before. The Greeks and Romans continued the use of waxed table books long after the use of papyrus, leaves, and skins, became common, because they were so convenient for correcting extemporary compositions.

Table books of ivory are still used for memorandums, but they are commonly written upon with black lead pencils. The practice of writing on table books covered with wax was not entirely laid aside till the commencement of the 14th century.

The bark of trees was also used for writing by the ancients, and is so still in several parts of Asia. The same thing may be said of the leaves of trees. It is needless to observe the use of parchment and vellum, papyrus and paper, for writing; it is too well known. The method of fabricating these substances has been already described as they occurred in the order of the alphabet.

It is obvious, that when men wrote, or rather engraved, on hard substances, instruments of metal were necessary, such as the chisel and the stylus; but the latter was chiefly used for writing upon boards, waxed tablets, or on bark.

When the ancients wrote on softer materials than wood or metal, other instruments were used for writing with, of which reeds and canes seem to have been the first. Reeds and canes are still used as instruments for writing with by the Tartars, the Indians, the Persians, the Turks, and the Greeks. Pencils made of hair are used by the Chinese for their writing: they first liquefy their ink, and dip their pencils into it. Hair-pencils have likewise been used for writing in Europe. Large capital letters were made with them from the time of the Roman emperors till the 16th century. After the invention of printing they were drawn by the illuminators. Quills of geese, swans, peacocks, crows, and other birds, have been used in these western parts for writing with, but how long is not easy to ascertain. St. Isidore, of Seville, who lived about the middle of the 7th century, describes a pen made of a quill as used in his time.

Method of restoring decayed Writings.—In the 77th vol. of the Phil. Trans. there is a paper on this subject by sir Charles Blagden. One of the best methods he found upon experiment to be, covering the letters with phlogisticated or prussic alkali, with the addition of a diluted mineral acid; upon the application of which, the letters changed very speedily to a deep blue colour, of great beauty and intensity. To prevent the spreading of the colour, which, by blotting the parchment, detracts greatly from the legibility, the alkali should be put on first, and the diluted acid added upon it. The method found to answer best has been, to spread the alkali thin with a feather over the traces of the letters, and then to touch it gently, as nearly upon or over the letters as can be done, with the diluted acid, by means of a feather or a bit of stick cut to a blunt point. Though the alkali should occasion no sensible change of colour, yet the moment the acid comes upon it, every trace of a letter turns at once to a fine blue, which soon acquires its full intensity, and is beyond comparison stronger than the colour of the original trace had been. If, then, the corner of a bit of blotting paper be carefully and dexterously applied near the letters, so as to imbibe the superfluous liquor, the staining of the parchment may be in a great measure avoided; for it is this superfluous liquor which, absorbing part of the colouring matter from the letters, becomes a dye to whatever it touches. Care must be taken not to bring the blotting paper in contact with the letters, because the colouring matter is soft whilst wet, and may easily be rubbed off. The acid chiefly employed was the marine; but both the vitriolic and nitrous succeed very well. They should be so far diluted as not to be in danger of corroding the parchment, after which the degree of strength does not seem to be a matter of much nicety.

WRITINGS (Instrument for copying). See SCOTOGRAPH.

WRITING-INK, the liquor used for the purpose of writing, usually of a black colour.

In the article INK we have noticed the various kinds of this material that are employed for different objects, as writing, printing, marking linen, &c.; and have described the common processes by which the various sorts are procured. Since writing that article a valuable report has been made to the French Imperial Institute, drawn up by MM. Berthollet, Vauquelin, and Deyeux, upon a memoir of M. Tarry's, containing a variety of inquiries in strict relation to the subject before us, and of too much importance to be omitted. We shall therefore give it in the abridged form in which the reporters have communicated it in the Annales de Chimie, vol. lxxv.

The object of this memoir is to explain:—1. The processes employed for discharging writing from paper. 2. The processes for reviving writings which have been apparently obliterated. 3. The best way of improving common ink. 4 The discovery of an ink which may resist all chemical agents.

The following is an abridgment of the observations contained under these respective heads:—

I.—*Processes for discharging Writing.*

The art of discharging writing is very ancient, and the means employed are very simple. In fact, we know that it is sufficient to moisten a written paper with any acid, when the writing will gradually disappear. But all the acids cannot be employed with equal success. Some leave a stain on the paper which is not easily removed: others corrode and render the paper unserviceable. The way to avoid these inconveniencies is to make choice of an acid which shall act on the writing only, without injuring the paper or giving it a colour different from that which it had before it was written upon.

In order to discover such of the acids as are best suited for the operation in question, the author determined to submit common writing ink to the action of different acids, and to observe carefully the phenomena which these bodies present at the time of their mixture. According to him, the sulphuric acid easily takes out writing, but at the same time it gives an oily tint to the paper.

The acid oxalat of potash produces more certain and more prompt effects. The oxygenized muriatic acid, if it be newly made, seems to be preferable to the above two acids, because at the same time that it takes out the writing it bleaches the paper without altering it.

It is not the same case with the nitric acid, which always takes out the ink, but soon penetrates the paper and forms above it undulated lines of a yellow colour.

We may succeed, however, in softening both these effects, by taking the precaution to dilute the nitric acid with a sufficient quantity of water, or to wash the paper immediately after the writing has been taken out.

A mixture of the muriatic and nitric acids has but a slow action upon writing. It bleaches the paper and does not oppose its desiccation, as when we employ the nitric acid alone.

In general, whatever be the kind of acid employed to discharge writing, it is always proper when the operation is performed to dip the paper in water, in order to dissolve the new combination which the acids have formed with the particles of ink which have been discharged.

M. Tarry, at the conclusion of this article, does not fail to observe that China ink does not act like common ink with the acids, as its composition is quite different from that which we use for writing of all kinds. So far from the acids attacking China ink, they make it, on the contrary, of a deep black: it cannot be discharged therefore without erasing it.

II.—*Processes for ascertaining what Writing has been substituted for something taken out, and Methods of reviving the Writing which has disappeared.*

All the methods which have been given for discharging writing consist, as abovementioned, in decomposing the ink and in forcing its constituent parts to form other combinations. These combinations, being decomposed in their turn by different agents, may regain a tint, which, if it be not that of ink, at least exhibits a shade which becomes perceptible enough for ascertaining the letters and words which had been traced on the paper before it was touched by the acids.

The gallic acid is, according to the author, one of those agents, which in this case succeeds very well.

The liquid prussiat of lime also produces a good effect.

It is the same case with the alkaline hydrogenated sulphurets. But it is very certain that we never obtain any success from the employment of these agents, when we have left any acid long in contact with the writing, and particularly if we have washed the paper afterwards.

In short, we may easily conceive, that in this case the constituent parts of the ink which were combined with the acid, and had formed with it compounds soluble in water, having been taken up by this fluid, ought not to leave any trace of their existence longer; and consequently it is impossible that the agents employed for discovering them can render them visible.

It is also for this reason that the gallic acid, the liquid prussiat of lime, the alkaline hydrogenated sulphurets, and so many other re-agents which have been so much praised, can no longer be regarded as infallible methods for reviving writing.

III.—*Improvement of Common Ink.*

Most of the inks now in use are of a bad quality. Some are spontaneously destroyed; others imperceptibly lose their black colour, and assume a yellow one; several, after a length of time, enter into the paper, and spoil it: lastly, there are some which are first pale and then become very black.

All these differences arise from the nature of the substances which have been employed in the making of the ink.

Convinced of the advantage of having a good article of this kind, the author commenced a series of experiments, but is forced to admit that he has not discovered any recipe superior to that which has been published by Lewis. This ink, according to our author, combines every advantage: but we must observe that it is no more exempt than the rest from being dissolved in the acids, and in this respect it has an inconvenience which those who wish to discharge writing from paper know very well how to profit by. This circumstance, no doubt, induced M. Tarry to make some new experiments in order to obtain an ink which should be inalterable by chemical agents; and he appears to us to have succeeded in his object.

IV.—*Discovery of an Ink which resists the Action of chemical Agents.*

The author describes his invention in the following words:

"My ink is founded upon principles different from those of all others. It contains neither gall-nuts, Brazil wood, or Campeachy, gum, nor any preparation of iron: it is purely vegetable, resists the action of the most powerful vegetables, the most highly concentrated alkaline solutions, and, finally, all the solvents.

"The nitric acid acts very feebly upon the writing performed with this ink. The oxymuriatic acid makes it assume the colour of pigeons' dung. After the action of this last acid, the caustic alkaline solutions reduce it to the colour of carburet of iron: the characters of the writing nevertheless remain without alteration, and it cannot pass through these different states except after long macerations. The principles of which it is composed render it incorruptible, and it can retain its properties many years."

The results which we obtained coincided entirely with those of the author, and we have no hesitation in saying, that his is the best we have ever seen of the kind which is called indelible ink. It is liable, however, to deposit a sediment, a disadvantage which we think might be removed by M. Tarry after a few more experiments. We have tried to discharge it with all the known chemical agents, but without effect. It yet remains however for M. Tarry to communicate his process to the public.

WRI′TINGMASTER. *s.* One who teaches to write (*Dryden*).

WRI′TTEN. The participle passive of *write.*

WRO′KEN. The part. pass. of *To wreak.*

WRONG. *s.* (ƿꞃanᵹe, Saxon.) 1. An injury; a designed or known detriment; not right; not justice (*Dryden*). 2. Errour; not right; not truth (*Roscommon*).

WRONG. *a.* (from the noun.) 1. Not morally right; not just; not agreeable to propriety or truth (*Addison*). 2. Not physically right; unfit; unsuitable (*Swift*). 3. Acting improperly (*Young*).

WRONG. *ad.* Not rightly; amiss (*Pope*).

To WRONG. *v. a.* (from the noun.) To injure; to use unjustly (*Hooker*).

WRONGDO′ER. *s.* (*wrong* and *doer.*) An injurious person (*Ayliffe*).

WRO′NGER. *s.* (from *wrong.*) He that injures; he that does wrong (*Raleigh*).

WRO′NGFUL. *a.* (*wrong* and *full.*) Injurious; unjust (*Shakspeare*).

WRO′NGFULLY. *ad.* Unjustly (*Sidney*).

WRO′NGHEAD. WRONGHE′ADED. *a.* (*wrong* and *head.*) Having a perverse understanding (*Pope*).

WRO′NGLESSLY. *ad.* (from *wrongless.*) Without injury to any (*Sidney*).

WRO′NGLY. *ad.* (from *wrong.*) Unjustly; amiss (*Locke*).

WROTE. The pret. and part. of *write.*

WROTH. (ƿꞃaꝺ, Saxon; *vrod*, Danish.) Angry: out of use (*Genesis*).

WROTHAM, a town in Kent, with a market on Tuesday. It has a large church, in which are 16 stalls, supposed to have been made for the clergy attending the archbishop of Canterbury, who had a palace here, till archbishop Ipsley, in the 14th century, demolished it, and built another at Maidstone. It is 11 miles W.N.W. of Maidstone, and 24 S.E. of London. Lon. 0. 24 E. Lat. 51. 18 N.

WROUGHT. (ƿꞃoᵹꝺ, Saxon. The pret. and part. pass. as it seems, of *work*; as the Dutch *wercken* makes *gerocht*.) 1. Effected; performed (*Stephens*). 2. Influenced; prevailed on (*Milton*). 3. Produced; caused (*Addison*). 4. Attained; worked (*Milton*). 5. Gained; laboured (*Shakspeare*). 6. Operated (*Milton*). 7. Used in labour (*Deuteronomy*). 8. Worked; driven (*Bacon*). 9. Actuated (*Dryden*). 10. Manufactured (*Ral.*). 11. Formed (2 *Corinthians*). 12. Excited by degrees (*Swift*). 13. Guided; managed (*Milton*). 14. Agitated; disturbed (*Shakspeare*).

WRUNG. The pret. and part. pass. of *wring*.

WRY. *a.* (from *writhe*.) 1. Crooked; deviating from the right direction (*Sidney*). 2. Distorted (*Arbuthnot*). 3. Wrung; perverted; wrested (*Atterbury*).

To WRY. *v. n.* (from the adjective.) To be contorted and writhed; to deviate from the right direction (*Sandys*).

To WRY. *v. a.* (from the adjective.) To make; to deviate; to distort (*Sidney*).

WRYNECK, in ornithology. See YUNX.

WULFENIA, in botany, a genus of the class diandria, order monogynia. Corol ringent; upper lip short, entire; lower lip three-parted; throat bearded; calyx five-parted; capsule two-celled. One species; a stemless plant of Carinthia, with peduncled, one-rowed, blue flowers.

WURMBEU, in botany, a genus of the class hexandria, order trigynia. Calyxless; corol six-parted, with a six-angled tube; filaments inserted in the throat. Three species; herbs of the Cape.

WURTENBURG. See WIRTEMBURG.

WURTZBURG, a duchy of Germany, comprehending a great part of Franconia. It is 65 miles long and 50 broad; bounded on the N. by Henneberg, E. by Bamberg, S. by Anspatch, Hohenlohe, and Mergentheim, and W. by Wertheim, Mentz, and Fulda. The soil is very fertile, and produces more corn and wine than the inhabitants consume. This territory was lately a bishopric, and its sovereign was one of the greatest ecclesiastic princes of the empire; but it was given as a principality to the elector of Bavaria, in 1803; and by the treaty of Presburg, in 1805, it was ceded to the archduke Ferdinand, whose electoral title was transferred from Salzburg to this place.

WURTZBURG, a fortified city of Franconia, capital of a duchy of the same name, with a magnificent palace, an university, an arsenal, and a handsome hospital. The fortress stands on an eminence, and communicates with the city by a stone bridge; it includes the late episcopal palace, and a church, supposed to be the oldest in Franconia. Beside the cathedral, there are several collegiate and parish churches, colleges, abbies, and convents. Here is a cannon and bell foundery; also cloth and stuff manufactures established in the house of correction. Wurtzburg was taken, in 1796, by the French, who were defeated here soon after, and the city retaken; but they became masters of it again in 1800. It is seated on the Maine, 40 miles W.S.W. of Bamberg, and 65 E.S.E. of Frankfort. Lon. 10. 14 E. Lat. 49. 46 N.

WURZEN, or WURTZEN, a town of Upper Saxony, in Misnia, with a castle. It was formerly a bishop's see; and has a cathedral and two churches. Here are fine bleaching grounds for linen; but the principal trade is in beer, of which great quantities are exported. It is situate on the Muldau, 15 miles E. of Leipsic, and 45 W.N.W. of Dresden.

WYCHERLEY (William), a comic writer, born at Cleve, Shropshire, 1640. At 15 he went to France, where he embraced the Roman catholic tenets, and on his return in 1660, he resided at Oxford, though not as member of the university. He returned to the protestant faith, and entered at the Middle Temple, but preferred literature to the law. In 10 years he produced four comedies: Love in a Wood; the Gentleman Dancing Master; Plain Dealer; and Country Wife; printed together in 1712: and the popularity of these recommended him to the notice of the great and the fair. He was noticed not only by Villiers, duke of Buckingham, and by the duchess of Cleveland, who admitted him to the last degree of intimacy, but by Charles II. who visited him when ill, and enabled him to remove to the south of France for his health. On his return, Wycherley was offered by the king the place of governor to his son; but his marriage with the countess of Drogheda offended his royal patron. Though the countess, who was fond of him to a ridiculous degree, bestowed on him all her property, yet at her death soon after, his right was disputed, and in consequence of law suits he was thrown into prison. Here he languished for seven years, till James II. going to see the Plain Dealer, was so pleased with it, that he offered to pay the debts of the author, and settled an annuity of 200l. on him. Wycherley, however, was ashamed to give an account of his debts, and continued in distress. Though averse to a married life, he wished to die married, and with this singular passion, he took for his second wife a lady worth 1500l. and died eleven days after, in 1715. Besides his comedies he wrote poems, a folio volume of which appeared in 1704, and his posthumous works, in prose and verse, were published by Theobald.

WYCKE (Thomas), of Haerlem, was eminent as a painter. His sea-ports, and his marine views, drawn in Italy, were highly admired. He died in 1686, aged 70. His son John resided for some years in London, where he assisted Kneller. His paintings of battles, and especially of horses, displayed superior excellence. He died in London, 1702, aged 62.

WYCOMB, or HIGH WYCOMB, a borough in Buckinghamshire, governed by a mayor, with a market on Friday. In 1744 a Roman tesselated pavement was discovered in an adjacent meadow; and near it are many corn and paper-mills. It is seated on the Wyck, 12 miles S.S.E. of Aylesbury, and 31 W.N.W. of London.

WYE, a town in Kent, with a market on Thursday, seated on the Stour, 10 miles S. of Canterbury, and 56 S.E. of London. Lon. 1. 4 E. Lat. 51. 10 N.

WYE, a river of South Wales, which issuing out of Plynlimmon-hill, very near the source of the Severn, crosses the N.E. corner of Radnorshire, giving name to the town of Rhyadergowy (Fall of the Wye), where it is precipitated in a cataract. Then flowing between this county and Brecknockshire, it crosses Herefordshire, and dividing the counties of Gloucester and Monmouth, falls into the mouth of the Severn, below Chepstow. The romantic beauties of the Wye, which flows in a deep bed, between lofty rocks clothed with hanging woods, and here and there crowned by ruined castles, have employed the descriptive powers of the pen and pencil.

WYE, a river in Derbyshire, which rises in the N.W. part, above Buxton, and flowing S.E. falls into the Derwent, below Bakewell.

WYE, a town of Switzerland, in a territory of the abbey of St. Gallen, with a palace. It is built on an eminence, 16 miles S.S.W. of Constance. Lon. 9. 4 E. Lat. 47. 34 N.

WYKEHAM (William of) an illustrious English prelate, born at Wykeham, in Hampshire, in 1324. He owed his greatness to a generous patron, Nicholas Uvedale, lord of the manor of Wykeham, and governor of Winchester; by whom he was maintained at school at Winchester, afterwards taken into his family, and appointed his secretary. Uvedale and Edyngdon, bishop of Winchester, introduced him to king Edward III. He was appointed surveyor of the royal buildings, and also chief justice in Eyre. It was by his advice that the king built Windsor castle in the magnificent manner in which it now appears. In 1359 he was constituted chief warden and surveyor of the king's castles of Windsor, Leeds, Dover, and Hadlam; in 1363, warden and justiciary of the king's forests on this side Trent; keeper of the privy seal in 1364; within two years after secretary to the king; and in 1367 he succeeded Edyngdon in the see of Winchester; and in the same year was constituted chancellor of England, in which he continued till 1371. He was not wanting in attention to his diocese. He repaired the palaces and houses belonging to his see at a great expence, and was very active in establishing strict discipline and reforming abuses.—He founded New college, Oxford, and that at Winchester. He died at South Waltham in 1404.

WYMONDHAM, or WINDHAM, a town in Norfolk, with a market on Friday The steeple of the church is very high; on it was hung Ket, the rebel, in the reign of Edward VI. It is nine miles S.S.W. of Norwich, and 100 N.N.E. of London. Lon. 1. 6 E. Lat. 52. 36 N.

WYNENDALE, a town of Austrian Flanders, where general Webb, in 1708, with 6000 men only, defeated 24,000 French. It is eight miles E.N.E. of Dixmude.

WYRE, a river in Lancashire, which rises near Wyresdale, six miles S.E. of Lancaster, and passing by Garstang, enters the Irish sea below Poulton.

X.

X, A double consonant, and the twenty-second letter in the English alphabet; which, however, begins no English word.

The *x* of the Latins, and ξ of the Greeks, are compounded of *c s*, and κ σ; whence to this day, the letter *x*, in the English and French, has the same sound with *c s*, or *k s*. Thus we pronounce *Alexander*, exactly as if written *Alecsander*, or *Aleksander*.

The Italians have no *x* at all in their language, but both speak and write *Alessandro*. The Spaniards pronounce the *x*, like our *c* before *a*; viz. *Alexandro*, as if it were *Alecandro*. The Portuguese pronounce it like *sh*.

In foreign words, used in English, we sometimes soften the *x* into a double *s*; as *Brussels*, for *Bruxelles*, &c.

This letter is not known in the Hebrew, or other oriental languages; but, in lieu of it, they write the two simple letters whereof it is compounded. And the like do the modern Germans.

Peter Diaconus relates, that the letter X was introduced into the Roman alphabet in the time of Augustus; and that, before his reign, the Romans supplied the want of it by the letters C and S. But Mr. Astle observes, that this is a mistake; the letter X being found in the Duilean pillar, inscribed in the year of Rome 494, and 259 before Christ. Origin and Progress of Writing, p. 78.

X is also a numeral letter, and signifies ten; as representing two V's placed one at top of the other. See V.

X *Supra denos numero tibi dat retinendos.*

When laid flat, thus ⋈, it signifies a thousand; and when a dash is added over it, $\overline{X}$, it signifies ten thousand. I before X denotes the subtraction, and after X the addition of unit: thus IX = 9, and XI = 11. X before L or C denotes the subtraction of 10 from 50, or 100. Thus XL = 40, and XC = 90.

X on the French coins, denotes those struck at Amiens.

We often meet with the Greek letters X and P joined in this manner ☧, on ancient medals. The first we find are on some large brass coins of the Ptolemies, kings of Egypt, where it was placed on a civil account.

Some writers have taken it for a date, and others for the initial letters of a proper name; but as no reasons are assigned for either of those conjectures, Mr. Ward rather supposes it an abbreviation of the word ΧΡΗΜΑ, *money*, impressed on those pieces, to denote their currency as money; which might be thought proper, as they have not the heads of kings stamped upon them, like their silver and gold coins; but always that of a Jupiter on the front, and an eagle perched on a thunderbolt on the reverse.

This character was afterwards applied to a very different purpose by Constantine the Great, who made use of it to denote ΧΡΙϹΤΟϹ, both in his coins and military ensigns; wherein he was followed not only by some succeeding emperors, but also by private persons, who, out of devotion, put it on their lamps and other utensils.

It afterwards came to be used merely as a critical note, to point out remarkable passages in manuscripts; and then it stood for the initials of ΧΡΗϹΙΜΟΝ, *useful*; as we learn from Isidore, Orig. lib. i. cap. 20.

XABEA, a seaport of Spain, in Valencia, 38 miles N.E. of Alicant, and 54 S.S.W. of Valencia. Lon. 0. 25 E. Lat. 38. 40 N.

XACCA, or SACCA, a seaport of Sicily, with an old castle. It is seated on the S. coast of the island, at the foot of a mountain, 20 miles S.E. of Mazara, and 41 S.S.W. of Palermo. Lon. 13. 2 E. Lat. 37. 41 N.

XAGUA, a seaport on the S. coast of the island of Cuba, one of the finest in America, 84 miles S.E. of Havanna. Lon. 80. 45 W. Lat. 22. 10 N.

XALAPA, a town of New Spain, in the province of Tlascala, with a bishop's see. It contains about two thousand inhabitants. This town is said to give name to the purgative root called jalap, or xalap. It is 60 miles E. of Angelos. Lon. 98. 20 W. Lat. 19. 32 N.

XALISCO, a town of New Spain, in the province of Guadalajara Proper, seated on the Pacific ocean, 400 miles W. of Mexico. Lon. 110. 5 W. Lat. 22. 30 N.

XANTHIUM. Small burdock. In botany, a genus of the class monœcia, order pentandria. Male: calyx common, imbricate; florets one-petalled, funnel-form, five-cleft; receptacle chaffy. Female: calyx two-leaved, two-flowered; corolless; drupe dry, prickly, bifid; nut two-celled. Three species: X. orientale, a native of India: X. spinosum, of France and Portugal: X. strumarium, of our own country, and found on our dunghills. Stem unarmed; leaves heart-shaped, three-nerved at the base. It was once esteemed in the cure of scrophula, but, like most other remedies against this disease, proves ineffectual. The seeds are administered internally in some countries against erysipelas.

XANTHORIZA, in botany, a genus of the class pentandria, order polygynia. Calyxless; petals five; nectaries five, pedicelled; capsules five, one-seeded. One species, a shrub of Carolina and New Georgia, three feet high; leaves alternate, pinnate; flowers dark violet, panicled, and terminal.

XANTHORRHŒA. Yellow resin tree. In botany, a genus of the class hexandria, order monogynia. Corol six-petalled, permanent; filaments flat, linear, naked; capsule three-sided; seeds two, compressed, margined. One species, X. hastilis, a native of Australasia, or New South Wales.

Yet though at present we do not know of more than one species belonging to this genus, we have reason to believe there are various others. From its flowing with a kind of yellow gum, Dr. Smith has given to this plant the generic name of xanthorrhœa, which is a Greek compound to express the English yellow-flow; and from the ordinary use made by the natives of New Holland of the wood of the detected species, that, we mean, of employing it for their spears, he has given it the specific name of hastilis, which is a Latin term importing this application.

The yellow gum that exudes from the tree is of a very peculiar kind, and employed for the most valuable purposes both in medicine and in the arts. The whole plant has hence been an object of minute investigation, both in our own country and abroad: and the following is M. Laugier's valuable description both of its history and chemical properties, drawn up chiefly from information communicated to him by that active and celebrated traveller M. Peron. We take the account from the Annales de Chimie, vol. lxxvi.

" 'The resin of the tree in question,' says M. Peron, 'exudes naturally from the bark of a tree peculiar to New Holland, and of which Dr. Smith has made a new genus, under the name of xanthorrhœa hastilis; thus intending to express in one term the colour of the resin of this strange tree, and in the other the use which the natives make of its shoots for their spears.

" 'It must be observed, however, that Dr. Smith's generic name is not strictly accurate; as the resin is very frequently brown, red like dragon's blood, green, &c. Hence the different names of yellow, red, green, &c. gum plant, or gum tree, given almost indiscriminately to the xanthorrhœa by the English at Port Jackson. Whether these varieties of colour indicate so many species or varieties of the tree that produces them, or depend merely on the age or other circumstances of the individual tree, has not yet been ascertained.

" 'Hitherto botanists have admitted only one species of xanthorrhœa, the hastilis, just mentioned: but as trees of this kind are found throughout the various parts of New Holland, an extent of country equal to all Europe, it is very probable that several species exist.

" 'Governor Philip, in his Voyage to Botany Bay, p. 60, and plate to p. 119, has given an incomplete description of the xanthorrhœa; and a figure, which, though not very carefully executed, is sufficient to afford an idea of this extraordinary tree.

" 'It is particularly abundant at Geographer's Bay, Leuwin's Land, and in the environs of Botany Bay; and appears to prefer a sandy and barren soil. The shoots, which the savages use for their spears, extend to the length of three, four, or even five yards; and are nearly of the same size, which is scarcely equal to that of the thumb, throughout their whole length.

" 'Each of these shoots terminates in a kind of spike, or ear, of a larger size, and from fifteen to twenty-four inches long; from the surface of which exudes a kind of viscous liquor, of a pleasant saccharine taste, and a strong aromatic smell. The savages are very fond of it; and I found it, on tasting it, to be as I have described. To procure these tops of the xanthorrhœa, the natives have recourse to their clubs [*casse-tête*], which they throw with such strength and skill, that they are sure to cut off the ear at what length they please at the first stroke.

" 'The resin flows naturally from the trunk of the tree, making its way through the bark. The portion of the stem that is buried in the sand appears to furnish the greater part; at least large pieces are found in the sand, apparently still adhering to the bark. Some of these pieces are remarkable for the perfect regularity of their spherical form.

" 'The English employ this resin against dysentery, for which they esteem it an excellent medicine. The savages use it for many domestic purposes, and particularly for cementing the points of their spears to the shaft. With this substance too they prepare the celebrated instrument that serves to discharge their spears; also their fishing implements, their stone hatchets, &c. They likewise employ it to unite the lips of wounds, however large or dangerous they may be; and I have seen some healed in this way by the first intention, that have appeared to me truly extraordinary.

" 'The wood of the xanthorrhœa, when burned, emits a smell, which is very pleasant at a little distance from the fire, but seemed to me too powerful if inhaled nearer. Such indeed is the odoriferous strength of this wood, that you may sometimes discover a party of savages more than a quarter of a league [half a mile] distant, merely by the smell it emits in burning.

" 'M. Martin-Monçan, formerly agent of the French government to Hyder Ali Khan, told me, on seeing a piece of the xanthorrhœa and smelling to it, that it very much resembled the celebrated eagle wood, which fetches such a high price in India, and the country of which is hitherto unknown to Europeans. M. Martin-Monçan considered it as by no means impossible, that the Malays, who in fact have long had a commercial intercourse with New Holland, visit its coast to procure the wood of the xanthorrhœa, which he believes to be the eagle wood itself.'

"The resin of the xanthorrhœa is friable, and easily separates into scales before the nail. Its fracture is shining and compact. It has a yellow colour, and a very pleasant balsamic smell, resembling that of poplar buds. When rubbed in a mortar, it clots, and adheres to it strongly. It is rendered very perceptibly electric by friction. The paper on which it has been put when powdered retains enough of it to acquire a deep yellow colour, which cannot be removed.

"Exposed to a gentle heat, it melts, swells up, gives out a considerable portion of aqueous vapour, diminishes in bulk, and acquires a brownish red colour inclining to purple. Placed on burning coals, it rises in dense fumes, very pungent, and so strongly aromatic as to be disagreeable; and soon after it flames, swells up considerably, and leaves a very bulky and very light coally residuum.

"From a variety of experiments it appears, that the yellow substance which flows from the xanthorrhœa is composed of a large portion of resin, combined with a few hundredths of a kind of spongy gum, insoluble in water, of benzoic acid, and of a very acrid, yellowish volatile oil, very pleasant to the smell.

"The yellowish substance of the xanthorrhœa then cannot be considered as a resin, properly so called; since it differs from resins in containing benzoic acid, to which it is indebted, at least in some measure, for its pleasant smell; and on this account it seems to belong rather to the balsams, than to the resins.

"What struck me most, observes M. Laugier, in the examination of this yellow substance, is its resemblance to that matter which the bees employ for stopping cracks in their hives, and to which the name of propolis has been given.

"This resinous, odoriferous matter, when separated from the wax, by which its properties are concealed, exhibits the characters of the yellow substance; and, if subjected to the same processes, comports itself in the same manner.

"It is considered by naturalists as ascertained almost to a demonstration, that the resinous matter which covers the buds of poplar trees, and preserves them from moisture, is that which the bees so carefully collect, to form their propolis. The smell of this matter, which is precisely the same with that of the propolis, strongly supports this opinion.

"The smell of the yellow substance too is similar to that of the poplar buds: and, if we cannot hence infer its perfect identity with propolis, it is at least certain, that the difference between them is too trifling to admit the supposition, that bees could not employ the yellow substance for the same purpose. This conjecture, however, might easily be verified in countries where the tree that produces it so abundantly grows.

"The resin I have just analysed enters into the composition of a cement, which the natives of New Holland employ for fixing the stone of their hatchets to the handle, and for securing the points of their spears. This cement is capable of acquiring such hardness, that the hardest substances cannot separate it, or even loosen the stone fastened by it. Its colour is a deep brown; and on rubbing it emits a fragrant smell, which does not differ from that of the yellow resin.

"I satisfied myself of the complete identity of this cement with the yellow resin, by examining a sufficient quantity of it, taken from a hatchet brought home by M. Peron, and which her majesty, the empress Josephine, deigned to accept from that navigator, as a valuable proof of the industry of the natives of Nuyt's Land.

"A hundred parts of the brown powder furnished by the cement were digested in alcohol at 40° [sp. gr. 0·817]. Two portions of this liquid added in succession were sufficient to take up all the resin that the cement contained. What remained after the action of the alcohol was nothing but a blackish gray powder, without smell or taste. The weight of this residuum was 51 parts, so that the alcohol had taken up 49.

"The alcoholic solution had a deep red colour, and was exactly similar to that obtained by macerating in the same menstruum the yellow resin, after it had been melted and turned brown by heat. On evaporation it yielded a red resin, which had all the characters of the resin of the xanthorrhœa.

"On the 51 parts not dissolved by the alcohol I boiled to dryness a small quantity of nitric acid, which caused the residuum to acquire a redness like that of oxyd of iron, and I treated this residuum with muriatic acid. After the action of this acid, the residuum, being 37 parts, was a white, dry powder, rough to the finger, and resembling fine sand.

"Ammonia, poured into the muriatic solution, separated seven parts of oxyd of iron; and oxalat of ammonia produced a precipitate equivalent to 3 parts of lime.

"This chemical examination shows, that 100 parts of the resinous cement are formed of

Yellow resin	49
Pure sand	37
Oxyd of iron	7
Lime	3
Loss	4
	100

"It appears, that necessity has taught the natives of New Holland a practice which engravers employ every day. It has taught them to mix a proper quantity of sand with the yellow resin kept some time in fusion, and thus to compose a cement capable of acquiring considerable hardness.

"This is the mode in which the resinous cement, called in the shops engravers' wax, is prepared. Brickdust is added to common resin: the mixture is melted, and cast in moulds; and thus it is formed into red cakes, which are sold to the engravers. I have satisfied myself, that the oftener this mixture has been melted the harder it is.

"I examined engravers' wax in comparison with the cement of the savages of New Holland; and I observed with surprise, that the proportions of resin and brickdust were precisely the same with those of the yellow resin and sand in the cement I analysed.

"It appeared to me, however, that the engravers' wax, though very hard, particularly when it has been melted several times, is inferior in solidity to the cement of the natives of New Holland; a difference that may be ascribed to the difference between the resins, and the greater or less force with which their particles cohere."

XANTHOXYLUM. Tooth-ach-tree. In botany, a genus of the class diœcia, order pentandria. Calyx five-parted, corolless. Female: pistils five; capsules five, one-seeded. Two species: X. trifoliatum, a Chinese shrub: X. clava Herculis, a native of Jamaica.

XANTIPPE, the wife of Socrates, and a woman of a violent temper. The philosopher was not unacquainted with her disposition before he married her. Xenophon asked him, "why he in that case married her?" "Because she exercises my patience," said Socrates, "and in bearing her ill-humour, I am able to support every thing else from others."

XATIVA, a town of Spain, in Valencia. Having taken the part of Charles III. in 1707, Philip V. ordered it to be demolished, and a new town to be built, called St. Philip. It is seated on the side of a hill, at the foot of which runs the Xucar, 32 miles S.W. of Valencia, and 50 N.W. of Alicant. Lon. 0. 14 W. Lat. 39. 4 N.

XAVIER, or Sabi, the capital of the kingdom of Whidah, on the slave coast of Guinea. It is noted for its great market, which is held at the distance of a mile from the walls. The market-place is surrounded by suttlers' booths, which are only permitted to sell certain sorts of meat, as beef, pork, and the flesh of goats and dogs. Here slaves of both sexes are bought and sold, as well as oxen, sheep, dogs, hogs, fish, and birds. Here are to be found various commodities of Whidau manufacture, and every thing of European, Asiatic, or African production. Xavier is seated one mile from the river Euphrates.

XEBEC, or Zebec, a small three-masted vessel, navigated in the Mediterranean sea, and on the coasts of Spain, Portugal, and Barbary. The sails of the xebec are in general similar to those of the poleacre, but the hull is extremely different from that and almost every other vessel. It is furnished with a strong prow: and the extremity of the stern, which is nothing more than a sort of railed platform or gallery, projects farther behind the counter and buttock than that of any European ship. Being generally equipped as a corsair, the xebec is constructed with a narrow floor, to be more swift in pursuit of the enemy; and of a great breadth, to enable her to carry a great force of sail for this purpose without danger of overturning. As these vessels are usually very low built, their decks are formed with a great convexity from the middle of their breadth towards the sides, in order to carry off the water which falls aboard more readily by their scuppers. But as this extreme convexity would render it very difficult to walk thereon at sea, particularly when the vessel rocks by the agitation of the waves, there is a platform of grating extending along the deck from the sides of the vessel towards the middle, whereon the crew may walk dry-footed whilst the water is conveyed through the grating to the scuppers. The xebecs, which are generally armed as vessels of war by the Algerines, mount from 16 to 24 cannon, and carry from 300 to 450 men, two-thirds of whom are generally soldiers.

XENOCRATES, a celebrated ancient Grecian philosopher, was born at Chalcedon in the 95th Olympiad. At first he attached himself to Æschines, but afterwards became a disciple of Plato, who took much pains in cultivating his genius, which was naturally heavy. As long as Plato lived, Xenocrates was one of his most esteemed disciples; after his death he closely adhered to his doctrine; and, in the second year of the 110th Olympiad, he took the chair in the academy, as the successor of Speusippus.

Xenocrates was celebrated among the Athenians, not only for his wisdom, but for his virtues. He was an admirer of the mathematical sciences: and was so fully convinced of their utility, that when a young man, who was unacquainted with geometry and astronomy, desired admission into the academy, he refused his request, saying, that he was not yet possessed of the handles of philosophy. In fine, Xenocrates was eminent both for the purity of his morals and for his acquaintance with science, and supported the credit of the Platonic school by his lectures, his writings, and his conduct. He lived to the first year of the 116th Olympiad, or the 82d of his age, when he lost his life by accidentally falling, in the dark, into a reservoir of water.

XENOPHANES, the founder of the Eleatic sect of philosophy among the Greeks, was born at Colophon probably about the 65th Olympiad. From some cause or other he left his country early, and took refuge in Sicily, where he supported himself by reciting, in the court of Hiero, elegiac and iambic verses, which he had written in reprehension of the theogonies of Hesiod and Homer. From Sicily he passed over into Magna Græcia, where he took up the profession of philosophy, and became a celebrated preceptor in the Pythagorean school. Indulging, however, a greater freedom of thought than was usual among the disciples of Pythagoras, he ventured to introduce new opinions of his own, and in many particulars to oppose the doctrines of Epimenides, Thales, and Pythagoras. Xenophanes possessed the Pythagorean chair of philosophy about seventy years, and lived to the extreme age of a hundred years, that is, according to Eusebius, till the 81st Olympiad. The doctrine of Xenophanes concerning nature is so imperfectly preserved, and obscurely expressed, that it is no wonder that it has been differently represented by different writers. Perhaps the truth is, that he held the universe to be one in nature and substance, but distinguished in his conception between the matter of which all things consist, and that latent divine force which, though not a distinct substance, but an attribute, is necessarily inherent in the universe, and is the cause of all its perfection. Xenophanes was the author of several poetical works, among which are mentioned a poem on the foundation of Colophon, some of the elegies above referred to, and a treatise concerning nature; all of which, however, with the exception of a few fragments, are lost.

XENOPHON, an Athenian, son of Gryllus, celebrated as a general, an historian, and a philosopher. In the school of Socrates he received those precepts which afterwards so eminently distinguished him. Being invited by Proxenus, one of his intimate friends, to accompany Cyrus the younger in an expedition against his brother Artaxerxes, king of Persia, he previously consulted Socrates, who strongly opposed it. Xenophon, however, ambitious of glory, hastened with precipitation to Sardis, where he was introduced to the young prince. In the army of Cyrus, Xenophon shewed that he was a true disciple of Socrates. After the decisive battle in the plains of Cunaxa, and the fall of Cyrus, the prudence and vigour of his mind were called into action. The ten thousand Greeks who had followed the prince were now at the distance of above 600 leagues from home, surrounded on every side by a victorious enemy, without money, without provisions, and without a leader. Xenophon was selected from among the officers to superintend the retreat. This celebrated retreat was at last happily effected by the Greeks, who returned home after a march of 1155 parasangs, or leagues, which was performed in 215 days, after an absence of 15 months. He had no sooner returned from Cunaxa, than he sought new honours in following the fortune of Agesilaus in Asia, where he conquered with him in the Asiatic provinces, as well as at the battle of Coronæa. His fame, however, did not escape the aspersions of jealousy: he was publicly banished from Athens for accompanying Cyrus against his brother; and being now without a home, he retired to Scillus, a small town in the neighbourhood of Olympia. In this solitary retreat, he dedicated his time to literary pursuits, but his peaceful occupations were soon disturbed by a war which arose between the Lacedæmonians and Elis. From the latter place he retired to the city of Corinth, where he died in the 90th year of his age, 359 years before the Christian era. The works of Xenophon are the Anabasis, the Cyropædia, his Hellenica, Memorabilia, besides other tracts. The simplicity and the elegance of Xenophon's diction have procured him the name of the Athenian Muse, and the bee of Greece. His sentiments, as to the divinity and religion, were the same as those of the venerable Socrates.

The best editions of the works of Xenophon are those of Franckfort in 1674, and of Oxford, in Greek and Latin, 5 vols. 8vo. 1703. His Cyropædia, Anabasis, and Memorabilia Socrates, have been published separately at Oxford; and there is a good translation of the Cyropædia by Spelman.

XERES-DE-BADAJOZ, a town of Spain, in Estremadura, and in the territory of Tra-la-Guadiana, seated on the rivulet Ardilla, 27 miles S.E. of Badajoz. Lon. 6. 32 W. Lat. 38. 9 N.

Xeres-de-Guadiana, a town of Spain, in Andalusia, seated on the Guadiana, 18 miles N. of Ayamonte. Lon. 7. 15 W. Lat. 37. 30 N.

XERANTHEMUM, in botany, a genus of the class syngenesia, order polygamia superflua. Receptacle chaffy; down chaffy and bristly; calyx imbricate, radiate, with the ray coloured. Three species only, natives of the south of Europe: X. annuum; X. inapertum; X. orientale.

This genus has a near resemblance to the elichrysum, Linn. or eternal flower, the species of which have been often included under it: they differ chiefly in having a simple or feathery down, instead of a chaffy or bristly. See Elichrysum.

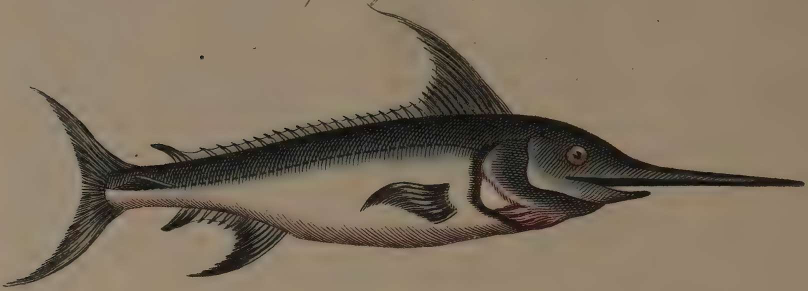
XERASIA. (from ξηρος, dry.) An excessive tenuity of the hairs similar to down.

XEROPHYTA, in botany, a genus of the class hexandria, order monogynia. Corol six-parted, equal; the divisions narrower; stigma clavate; capsule inferior, three-celled, many-seeded. One species, a Madagascar shrub, with flowers at the end of the branchlets.

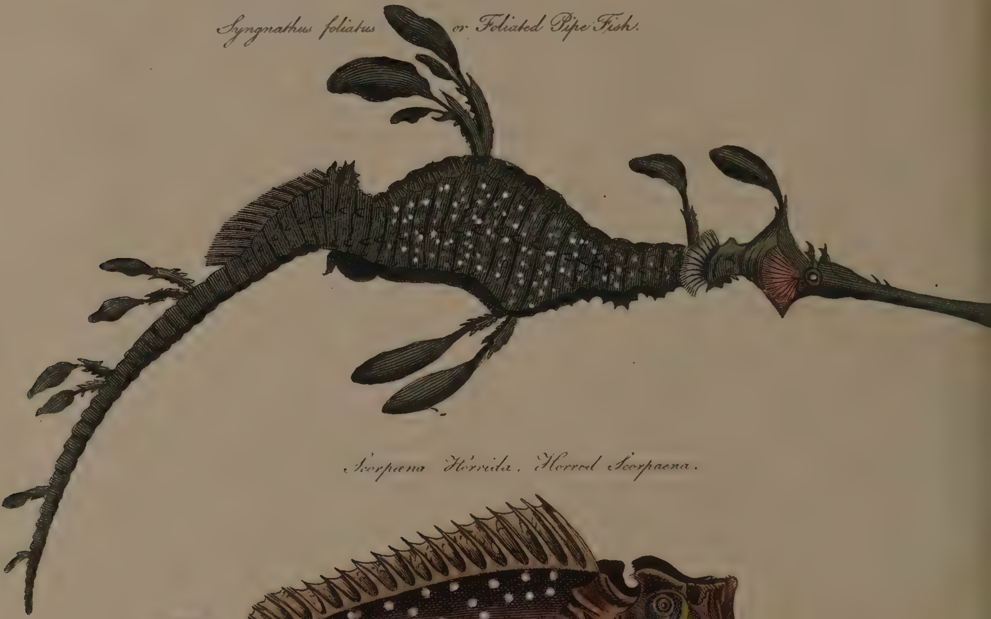
XERXES, the fifth king of Persia, and second son of Darius Hystaspes. He reduced Egypt under his power, of which he left his brother Achemene governor. Encouraged by this success, he marched against the Greeks with an army of 800,000 men, and a fleet of 1000 ships. He threw a bridge over the Hellespont, and cut through mount Athos. But being arrived at the straits of Thermopylæ, Leonidas with only 300 Lacedemonians disputed the passage with him for a long time, making an immense slaughter of the Persians. The Athenians soon after gained the famous naval battle of Salamine, obliging Xerxes to retire into his own dominions, leaving his general, Mardonius, in Greece to command the remains of his troops. Notwithstanding he was vain and insolent enough to desire to control the elements, by ordering the sea to be whipped and chains to be thrown into it, yet he was capable of making a salutary reflection, as was seen by his shedding tears one day on beholding his vast army from an eminence. On his being asked the cause, he said, it was the thought of mortality, which in a few years would not leave one of that immense body alive.

XIMENES (Francis), archbishop of Toledo, born at Torrelaguna, in Castile, in 1437. King Ferdinand confided to him the administration of state affairs; which he conducted with great ability and integrity. Julius II. in 1507, created him cardinal of Spain. He founded the college of Alcala, and the magnificent library there. In the war his sovereign undertook against the Moors, the cardinal entered victoriously into Oran, at the head of the troops. He gained great popularity by the precautions he took against an apprehended famine, and by preserving great quantities of

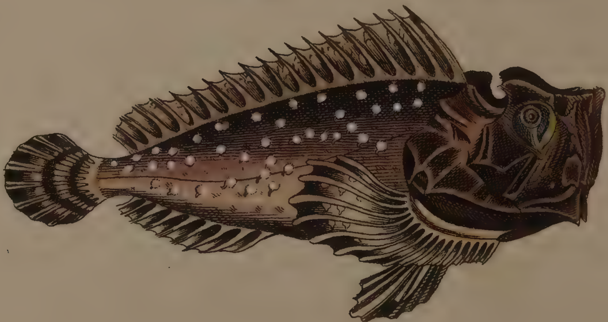
Xiphias Gladius or Sword Fish.



Syngnathus foliatus or Foliated Pipe Fish.



Scorpæna Horrida. Horrid Scorpaena.



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corn in granaries at his own cost. Upon the death of Ferdinand, he was left regent, the heir Charles being at that time in Flanders. The grandees of Spain became his enemies, as he had not only diminished the influence they had been accustomed to derive from their large possessions, but reduced numerous pensions and useless places. He was a patron and protector of literature. He died, as it is said, of poison, in 1517. He caused to be printed at Alcala, the great Polyglot Bible, which bears the name of the Complutensian edition. This work is now very scarce and valuable.

XIMENESIA, in botany, a genus of the class syngenesia, order polygamia superflua. Receptacle chaffy; downless; seeds of the margin naked, emarginate, of the centre winged on the margin; calyx many-seeded, nearly equal. One species, a Mexican plant, with opposite leaves and peduncled flowers.

XIMENIA, in botany, a genus of the class octandria, order monogynia. Calyx four-cleft; petals four, hairy, revolute; drupe one-seeded. Three species, trees of the West Indies and America.

XIMO, an island of Japan, the second in size and eminence, situate to the S.W. of Niphon, from which it is divided by a narrow channel. It is about 450 miles in circuit.

XIPHIAS. Sword-fish. In zoology, a genus of the class pisces, order apodalia. Head furnished with a long, hard, sword-shaped upper jaw; mouth without teeth; gill-membrane eight-rayed; body rounded, without apparent scales. Two species.

1. X. gladius: with the dorsal fin falcate. The name is evidently derived from the peculiar conformation of the upper jaw, which projects about four times the length of the lower one, is compressed at the top and bottom, and sharpened towards the point. This enormous snout is three feet long, resembling a sword in shape; its substance is rough and hard, and capable of piercing and sinking small vessels in the sea, as is asserted by Pliny, and as is probably correct.

The sword-fish grows to the length of twenty feet; the head alone being in some instances known to weigh upwards of seventy pounds. The body is long and slender, thick towards the head, but tapering off into a small size as it approaches the tail: colour above black, on the belly of a silvery white: mouth without teeth; the lower jaw terminates like the upper one, in a sharp spear-like point, but greatly inferior in length: the dorsal fin takes its rise above the gills, and continues till it nearly reaches the tail; it is supported by twenty-six rays; the first of which is by far the strongest and highest, the others gradually diminishing, till the four last, which again rise higher, and give the appearance of a second fin. The tail branches into a fork or crescent: there are on each side, a little above the tail, two triangular protuberances, formed by the skin, resembling the spurious fins of the thunny: the pectoral fins are placed at the gills; the first ray of these is also by far the longest, which gives them the appearance of a scythe. The anus is placed about one third part of the body from the tail, and below it are two anal fins connected by a common membrane. The sword-fish is exceedingly voracious, and is a great enemy of the thunny, which discovers its fear as soon as it approaches. Ovid and Belon take notice of its hostilities against this timid prey.

This fish sometimes frequents the British seas, but is much more common in the Mediterranean; the Straits of Messina are particularly famous for it; and it was probably upon a promontory there that the speculatores, or persons employed to watch and give notice of its approach, were stationed. Willoughby informs us that he went himself to Scylla to be a spectator of the Italian method of killing this animal: the spies above, on seeing the sword, make signals to the boats below, directing the sailors where to steer: as soon as the vessel reaches the spot where the fishes reside, one of the most skilful of the fishermen gets upon a mast, erected for the purpose, and directs the boat till it comes within reach of the particular fish at which he intends to aim; he then descends, and pierces it with a spear, fastening the instrument to a rope; when the animal is allowed to struggle till overcome with fatigue and pain; after which it is either taken up into the boat, or drawn ashore, according to its size. Flesh good.

2. X. platypterus. Indian sword-fish. Dorsal fin very broad; thorax with two very long pointed appendages. Body silvery blueish white; upper part of the back, head and tail deep brown; dorsal fin pale-brown, finely spotted with roundish black marks; skin smooth, without the appearance of scales; tail semilunar. Inhabits the Brasilian and East India seas; grows to the length of twenty feet or more; is a very powerful fish; frequently attacks whales, and pierces the sides of ships with its swordlike snout, as part of the bottom of a large East Indiaman with the sword of this fish driven completely through is now in the British Museum. The fish was killed by the violence of the effort, and the vessel probably saved from foundering by its not having power to withdraw it. See Nat. Hist. Pl. CXC.

XIPHIAS, in astronomy. See DORADO.

XIPHIDIUM, in botany, a genus of the class triandria, order monogynia. Corol six-petalled, equal; capsule superior, three-celled, many-seeded. Two species; one an herb of Cumana, the other of Guiana.

XIPHIUM (Bulbous). See IRIS.

XIPHOID. (from ξιφος, a sword, and ειδος, likeness.) A term given by anatomists to parts which had some resemblance to an ancient sword, as the xiphoid cartilage.

XIPHOID CARTILAGE. See CARTILAGO ENSIFORMIS.

XYLOALOES. See LIGNUM ALOES.

XYLOBALSAMUM. See BALSAMUM GILEADENSIS.

XYLOCARPUS, in botany, a genus of the class octandria, order monogynia. Calyx four-toothed; corol four-petalled; nectary eight-cleft; filaments inserted into the nectary; drupe juiceless, large, four or five-grooved; nuts eight or ten, differently shaped. One species, a branched tree of the East Indies.

XYLOMELUM, in botany, a genus of the class tetrandria, order monogynia. Ament with a single scale; petals four, supporting the stamens; style clavate, obtuse; capsule one-celled, two-seeded; seeds winged. One species, a native of Australasia.

XYLOPHYLLA. Love-flower. In botany, a genus of the class pentandria, order trigynia. Calyx five-parted, coloured; corolless; stigmas torn; capsule three-celled; seeds double. Seven species, natives of the East and West Indies and Siberia. The following are cultivated.

1. X. longifolia. Long-leaved love-flower.
2. X. latifolia. Broad-leaved love-flower.
3. X. falcata. Falcated love-flower.

They are all stove-plants; and may be raised by offsets, slips, and cuts.

XYLOPIA, in botany, a genus of the class polyandria, order polygynia. Calyx three-leaved; petals six; capsules about one-seeded, four-sided, two-valved; seeds coated. Three species, trees of the West Indies.

XYLOSMA, in botany, a genus of the class monœcia, order icosandria. Calyx four or five-parted; corolless. Male: stamens surrounded with an angular nectary. Female: style minute; stigma obscurely three-cleft; berry dry, or two-celled, the cells two-seeded. Two species, natives of New South Wales.

XYLOSTEUM. See Lonicera.

XYLOSTROMA, in botany, a genus of the class cryptogamia, order fungi. Fungus leathery, expanded, deformed, penetrating, smooth, even; seeds globular, minute, among the fibres. One species only, a native of our own country, and well known by the name of oak-leather, as being frequently found on the oak tree.

XYNOECIA, in Grecian antiquity, an anniversary feast observed by the Athenians in honour of Minerva, upon the sixteenth of Hecatombæon, to commemorate their leaving, by the persuasion of Theseus, their country-seats, in which they lay dispersed here and there in Attica, and uniting together in one body.

XYRIS, in botany, a genus of the class triandria, order monogynia. Corol three-petalled, equal, crenate; glumes two-valved, in a head; capsule superior. Four species, natives of the East or West Indies, or of the Cape. See Botany, Pl. CXCI.

XYSTARCHA, in antiquity, the master or director of the xystus. In the Greek gymnasium, the xystarcha was the second officer, and the gymnasiarcha the first; the former was his lieutenant, and presided over the two xysti, and all exercises of the athletæ therein.

XYSTUS, among the Greeks, was a long portico, open or covered at the top, where the athletæ practised wrestling and running: the gladiators, who practised therein, were called xystici. Among the Romans, the xystus was only an alley, or double row of trees, meeting like an arbour, and forming a shade to walk under.

Y.

Y, The twenty-third letter in the English alphabet, borrowed, originally, from the Greek *υ*.

It is occasionally both vowel and consonant. As a vowel, some authors have judged it unnecessary in our language, in regard its sound is precisely the same with that of the *i*. Accordingly, it is but little used, except in words borrowed from the Greek, to denote their origin, by representing the Greek υψιλον.

The vowel *y*, however, has a place even in some words purely English; and that both in the middle thereof, as in *dying, frying*, &c. and at the end, as in *lay*, &c.

Some ascribe the use of the *y*, in pure English and French words, and those that have no *y* in Latin or Greek, to this; that anciently each of those words were written with a double *ii*; which having something awkward in it, the *y* was substituted in lieu thereof.

Others say, that those words being anciently written as well as pronounced with a double *ii*, as they still are in the Walloon, as *paiing, paiisan*, &c. to avoid their being mistaken for an *u* with two dots over it, they made the second *i* longer than the first, and so formed the *y* without designing it. Some give a particular reason, why words ending in *i* came to be written with *y*; viz. that the copyists found the tail of the *y* very commodious, in adorning the margins and bottoms of pages.

Y was much used by the Saxons; whence it is found for *i* in the old English writers.

When the *y* follows a consonant, and at the end of words, it is a vowel, and has the sound of *i*; and when it precedes a vowel, or diphthong, and at the beginning of words, it is a consonant.

Some have thought that *y* is in all cases a vowel; but Dr. Johnson observes of *y*, as of *w*, that it follows a vowel without any hiatus, as *rosy youth*.

The Romans used the *y* for the vowel *u*, which they had no character for, distinct from the *v* consonant; their way being to pronounce the common *u*, as we do the diphthong *ou*; and the Greek υψιλον, as the English and French *u*.

In our own, and some other modern tongues, authors begin to dispense more and more with the precise orthography, which requires all words that have an upsilon, in the Greek, to be written with a *y*. And with reason; since our Greek *y* has lost the sound it had, in the language whence we borrow it. But it is certainly ridiculous to use it, as many do, in words which indeed have a Greek origin, but have no *u* in the Greek, as in *eclipse*; yet some affect to do this.

Y is also a numeral letter, signifying 150, or, according to Baronius, 159; as in the verse,

Y *dat centenos & quinquaginta novenos.*

When a dash was added at top, $\overline{\text{Y}}$, it signified 150 thousand.

Pythagoras used the Y as a symbol of human life; the foot representing infancy, and the forked top the two paths of vice and virtue, one or the other of which people are to enter upon, after attaining to the age of discretion.

Y on the French coins, denotes those struck at Bourges.

YAC, in zoology. See Bos.

YACHT, or YATCH, denotes a vessel of state, usually employed to convey princes, ambassadors, or other great personages, from one kingdom to another.

The word seems derived from the Dutch *iacht*, hunting, by reason of the lightness of these vessels.

As the principal design of a yacht is to accommodate the passengers, it is usually fitted with a variety of convenient apartments, with suitable furniture, according to the quality or number of the persons contained in it.

The royal yachts are commonly rigged as ketches, except the principal one reserved for the sovereign, which is equipped with three masts, like a ship. They are, in general, elegantly furnished, and richly ornamented with sculpture; and always commanded by captains in his majesty's navy.

Beside these, there are many other yachts of a smaller kind, employed by the commissioners of the excise, navy, and customs; or used as pleasure-boats by private gentlemen.

YACOU, in ornithology. See PENELOPE.

YAKUSTK, or JAKUTSKOI, a town of Siberia, in the government of Irkutsk, capital of a province of the same name, with a wooden fort. It is seated on the Lena, 960 miles N.E. of Irkutsk. Lon. 129. 48 E. Lat. 62. 2 N.

YALDEN (Thomas), a poet born at Exeter

in 1671. He was educated at Magdalen college school, and after being commoner of Magdalen hall, he obtained a scholarship at Magdalen college, where he had for his fellow students Addison and Sacheverell. He published an ode on the taking of Namur, and a poem on the death of the duke of Gloucester, and in 1710 obtained a fellowship, and the following year was presented to a small living in Warwickshire. In 1706 he was received into the duke of Beaufort's family, and the next year resigned his fellowship. He afterwards obtained the livings of Chalton and Cleanville, in Hertfordshire, and the sinecures of Deans, Hains, and Pendles, in Devonshire, and lived in peaceful retirement until the trial of Atterbury. As Dr. Yalden was intimate with Kelly, the prelate's secretary, he was regarded as an accomplice, and arrested; but as no direct charge could be brought against him, except a treasonable explanation of the words "thorough paced doctrines" discovered in his pocket book, he was set at liberty. He died in 1736. He wrote besides, Hymn to Light; Hymn to Darkness, &c.

YAM. See Dioscorea.

YANG-TCHEOU, a city of China, of the first rank, in the province of Kiang-nan. Its district is intersected by a number of canals; and it carries on a great trade, particularly in salt, which is made on the seacoast of this jurisdiction. It stands on the left bank of the Kian-ku, where the imperial canal crosses that river, 485 miles S. by E. of Peking. Lon. 118. 54 E. Lat 32. 26 N.

YAO-GAN, a city of China, of the first rank, in the province of Yun-nan. Its territory is intermixed with mountains, fine forests, and fruitful valleys, and produces abundance of musk. Near the city is a salt spring, which produces very white salt. It is 100 miles W. by N. of Yun-nan. Lon. 100. 45 E. Lat. 25. 12 N.

Yao Tcheu, a city of China, of the first rank, in Kiang-si, on the W. side of the lake Poyang, 700 miles S. of Peking. Lon. 116. 40 E. Lat. 29. 8 N.

YAPON, in botany. See Ilex.

YARD, *virga*, a long measure, used in England and Spain; chiefly to measure cloth, stuffs, &c.

The English yard contains three feet. It was first settled by Henry I. from the length of his own arm. See Measure.

The English yard is just seven-ninths of the Paris ell; so that nine yards make seven ells. To reduce ells, therefore, into yards, say, if seven ells give nine yards, how many yards will the given number of ells give?

Yards are converted into ells Flemish, by adding a third part; into ells English, by subtracting a fifth part; or multiplying by eight, and casting off the right-hand figure. Ells English are converted into yards, by adding a fourth. To turn ells Flemish into yards, subtract one quarter.

The Spanish vara, or yard, chiefly used at Seville, is, in some places, called barra. It contains seventeen twenty-fourths of the Paris ell; so that seventeen ells make twenty-four Spanish yards.

Yard, in anatomy. See Penis.

Yard, enclosed ground adjoining to a house.

Yard of a ship, a long piece of timber suspended upon the masts of a ship, to extend the sails to the wind.

Yard arm is that half of the yard that is on either side of the mast, when it lies athwart the ship.

Yards also denotes places belonging to the navy, where the ships of war, &c. are laid up in harbour. There are, belonging to his majesty's navy, six great yards, viz. Chatham, Deptford, Woolwich, Portsmouth, Sheerness, and Plymouth; these yards are fitted with several docks, wharfs, launches, and graving places, for the building, repairing, and cleaning of his majesty's ships; and therein are lodged great quantities of timber, masts, planks, anchors, and other materials: there are also convenient store-houses in each yard, in which are laid up vast quantities of cables, rigging, sails, blocks, and all other sorts of stores, needful for the royal navy.

YA'RDWAND. *s.* (*yard* and *wand.*) A measure of a yard (*Collier*).

YARE. *a.* (ᵹeaɲpe, Saxon.) Ready; dexterous; eager (*Shakspeare*).

Yare, a river in Norfolk, formed by the confluence of several streams that rise in the heart of the country. It passes by Norwich, whence it is navigable to Yarmouth, where it enters the German ocean.

YA'RELY. *ad.* Dexterously; skilfully (*Sh.*).

YARKAN, or Irken, a town of Tartary, in the country of Cashgur, with a large palace where the khan of the Eluth Tartars generally resides. It has a considerable trade, and stands in a fertile country, on a river of the same name, 100 miles S.E. of Cashgur. Lon. 79. 4 E. Lat. 38. 40 N.

YARM, a town in N. Yorkshire, with a market on Thursday, and a great trade in corn and lead. It is seated on the Tees, 17 miles N. by E. of Northallerton, and 239 N. by W. of London.

YARMOUTH, a seaport and borough in Norfolk, governed by a mayor, with a market on Wednesday and Saturday. It is seated at the mouth of the Yare, and enjoys the export and import trade of various places in Norfolk and Suffolk. The harbour is convenient for business, the vessels lying in the river, along a very extensive quay. Its foreign trade is considerable, and it also sends ships to the Greenland fishery. A great number of herrings are cured here, and, under the name of red herrings, are either consumed at home, or exported to southern countries. Yarmouth is much frequented for sea-bathing, and has two churches. The market-place is very spacious; but the streets, in general, are very narrow. In 1801 the number of inhabitants was 14,485. Off the mouth of the harbour is a bar, which prevents the entry of ships of large burden; and the many sandbanks off the coast form the

Yarmouth Roads, so noted forfrequent shipwrecks. Yarmouth is 23 miles E. of Norwich, and 124 N.E. of London. Lon. 1. 45 E. Lat. 52. 38 N.

Yarmouth, a borough in Hampshire, on the N.W. coast of the isle of Wight, with a fortified castle, and a convenient quay. It is seated at the mouth of the Yar, 10 miles W. of Newport.

Yarmouth, a seaport of Massachusets, in Barnstable county, on the N. side of the peninsula of Cape Cod, five miles N.N.W. of Barnstable. Lon. 70. 12 W. Lat. 41. 52 N.

YARN. *s.* (ʒeaꞃn, Saxon.) Spun wool; woollen thread (*Temple*).

To YARR. *v. n.* (from the sound; *hirrio*, Lat.) To growl, or snarl like a dog (*Ains.*).

YARROW (Common). See Achillea and Millefolium.

YARVA MORA. See Bosca.

YARUM, a town in the N. riding of Yorkshire, with a market on Thursday. It is seated on the Tees, over which is a stone bridge, 40 miles N.N.W. of York, and 238 N. by W. of London. Lon. 1. 12 W. Lat. 54. 31 N.

YAWL. *s.* A little vessel belonging to a ship, for convenience of passing to and from it.

To YAWN. *v. n.* (ʒeonan, Saxon.) 1. To gape; to oscitate; to have the mouth opened involuntarily by fumes (*Dryden*). 2. To open wide (*Prior*). 3. To express desire by yawning (*Hooker*).

Yawn. *s.* (from the verb.) 1. Oscitation (*Pope*). 2. Gape; hiatus (*Addison*).

YA'WNING. *a.* (from *yawn.*) Sleepy; slumbering (*Shakspeare*).

Yawning, an involuntary opening of the mouth, generally produced by weariness or an inclination to sleep. Yawning, according to Boerhaave, is performed by expanding at one and the same time all the muscles capable of spontaneous motion; by greatly extending the lungs; by drawing in gradually and slowly a large quantity of air, and gradually and slowly breathing it out, after it has been retained for some time and rarified; and then restoring the muscles to their natural state. Hence the effect of yawning is to move, accelerate, and equally distribute all the humours through all the vessels of the body, and consequently to qualify the muscles and organs of sensation for their various functions. When yawning is troublesome, Hippocrates says that long deep respiration or drawing in the air at long intervals cures it.

YAXLEY, a town in Huntingdonshire, where extensive prisons are erected for the reception of French prisoners of war, 14 miles N. of Huntingdon, and 77 from London.

YCLA'D. part. for *clad.* Clothed (*Shaks.*).

YCLE'PED. (part. pass. of *clepe*, with *y.*) Called; termed; named (*Milton*).

YDRA'D. The old pret. of *To dread* (*Sp.*).

YE. The nominative plural of *thou.*

YEA. *ad.* (ea, or ʒea, Saxon.) Yes (*Matthew*).

To YEAD, or Yede. *v. n.* preterit *yode.* To go; to march: obsolete (*Spenser*).

To YEAN. *v. n.* (eanian, Saxon.) To bring young. Used of sheep (*Mortimer*).

YE'ANLING. *s.* (from *yean.*) The young of sheep (*Shakspeare*).

YEAR, in astronomy and chronology, the portion of time occupied by the sun in passing over the twelve signs of the zodiac, and in which is comprehended the several changes of seasons.

The mean solar year, according to the observations of the best modern astronomers, contains 365 days, 5 hours, 48 min. 48 seconds: the quantity assumed by the authors of the Gregorian calendar is 365 days, 5 hours, 49 min. But in the civil or popular account, this year only contains 365 days; except every 4th year, which contains 366.

The vicissitude of seasons seems to have given occasion to the first institution of the year. Man, naturally curious to know the cause of their diversity, soon found it was the proximity and distance of the sun; and therefore gave the name year to the space of time in which that luminary performed his whole course, by returning to the same point of his orbit. According to the accuracy in their observations, the year of some nations was more perfect than that of others, but none of them quite exact, nor whose parts did not shift with regard to the parts of the sun's course.

According to Herodotus, it was the Egyptians who first formed the year, making it to contain 360 days, which they subdivided into 12 months of 30 days each. Mercury Trismegistus added five days more to the account. And on this footing it is said that Thales instituted the year among the Greeks; though that form of the year did not hold throughout all Greece. Also, the Jewish, Syrian, Roman, Persian, Ethiopic, Arabic, &c. years, were all different. In fact, considering the imperfect state of astronomy in those ages, it is no wonder that different people should disagree in the calculation of the sun's course. We are even assured by Diod. Siculus, lib. 1. Plutarch, in Numa, and Pliny, lib. 7. cap. 48, that the Egyptian year itself was at first very different from that now represented.

The solar year is either astronomical or civil.

The *Astronomical Solar Year*, is that which is determined precisely by astronomical observations; and is of two kinds, tropical, and sidereal or astral.

Tropical, or *Natural Year*, is the time the sun takes in passing through the zodiac; which, as before observed, is 365 d. 5 h. 48 m. 48 sec.; or 365 d. 5 h. 49 m. This is the only proper or natural year, because it always keeps the same seasons to the same months.

Sidereal, or *Astral Year*, is the space of time the sun takes in passing from any fixed star, till his return to it again. This consists of 365 d. 6 h. 9 m. 11 sec.; being 20 m. 29 sec. longer than the true solar year.

Astronomers sometimes speak of the *Anomalistic Year* as the interval which is occupied by the sun in passing from apogee to apogee, or from perigee to perigee: it is greater than the sidereal year by the time required to describe the annual progression of the apogee. The length of the anomalistic year is 365 d. 6 h. 14 m. 1 s.

Lunar Year, is the space of 12 lunar months. Hence, from the two kinds of synodical lunar months, there arise two kinds of lunar years; the one astronomical, the other civil.

Lunar Astronomical Year, consists of 12 lunar synodical months: and therefore contains 354 d. 8 h. 48 m. 38 s. and is therefore 10 d. 21 h. 0 m. 10 s. shorter than the solar year. A difference which is the foundation of the epact.

Lunar Civil Year, is either common or embolismic.

The *Common Lunar Year*, consists of 12 lunar civil months; and therefore contains 354 days. And

The *Embolismic*, or *Intercalary Lunar Year*, consists of 13 lunar civil months, and therefore contains 384 days.

Thus far we have considered years and months, with regard to astronomical principles, upon which the division is founded. By this the various forms of civil years that have formerly obtained, or that do still obtain, in divers nations, are to be examined.

Civil Year is that form of year which every nation has contrived or adopted for computing their time by. Or the civil is the tropical year, considered as only consisting of a certain number of whole days: the odd hours and minutes being set aside, to render the computation of time, in the common occasions of life, more easy. As the tropical year is 365 d. 5 h. 49 m. or almost 365 d. 6 h. which is 365 days and a quarter; therefore, if the civil year be made 365 days, every 4th year it must be 366 days, to keep nearly to the course of the sun. And hence the civil year is either common or bissextile. The

Common Civil Year, is that consisting of 365 days; having seven months of 31 days each, four of 30 days, and one of 28 days; as indicated by the following well known memorial verses:

Thirty days hath September,
April, June, and November;
February twenty-eight alone,
And all the rest have thirty-one.

Bissextile, or *Leap Year*, consists of 366 days; having one day extraordinary; called the intercalary, or bissextile day; and takes place every 4th year. This additional day to every 4th year was first introduced by Julius Cæsar; who, to make the civil years keep pace with the tropical ones, contrived that the six hours which the latter exceeded the former should make one day in four years, and be added between the 24th and 23d of February, which was their 6th of the calends of March; and as they then counted this day twice over, or had *bis sexto-calendas*, hence the year itself came to be called *bis sextus*, and *bissextile*.

However, among us, the intercalary day is not introduced by counting the 23d of February twice over, but by adding a day at the end of that month, which therefore in that year contains 29 days.

A farther reformation was made in this year by pope Gregory. See GREGORIAN YEAR, CALENDAR, BISSEXTILE, and LEAP-YEAR.

The civil or legal year, in England, formerly commenced on the day of the Annunciation, or 25th of March; though the historical year began on the day of the circumcision, or 1st of January; on which day the German and Italian year also begins. The part of the year between these two terms was usually expressed both ways: as 1745-6, or $174\frac{5}{6}$. But by the act for altering the stile, the civil year now commences with the 1st of January.

Ancient Roman Year. This was the lunar year, which, as first settled by Romulus, contained only ten months, of unequal numbers of days, in the following order: viz.

March 31; April 30; May 31; June 30; Quintilis 31; Sextilis 30; September 30; October 31; November 30; December 30; in all 304 days; which came short of the true lunar year by 50 days; and of the solar by 61 days. Hence, the beginning of Romulus's year was vague, and unfixed to any precise season; to remove which inconvenience, that prince ordered so many days to be added yearly as would make the state of the heavens correspond to the first month, without calling them by the name of any month.

Numa Pompilius corrected this irregular constitution of the year, composing two new months, January and February, of the days that were used to be added to the former year. Thus Numa's year consisted of 12 months, of different days, as follow; viz.

January 29; February 28; March - 31;
April - 29; May - 31; June - 29;
Quintilis 31; Sextilis - 29; September 29;
October 31; November 29; December 29;

in all 355 days; therefore exceeding the quantity of a lunar civil year by one day; that of a lunar astronomical year by 15 h. 11 m. 22 s; but falling short of the common solar year by 10 days; so that its beginning was still vague and unfixed.

Numa, however, desiring to have it begin at the winter solstice, ordered 22 days to be intercalated in February every 2d year, 23 every 4th, 22 every 6th, and 23 every 8th year.

But this rule failing to keep matters even, recourse was had to a new way of intercalating; and instead of 23 days every 8th year, only 15 were to be added. The care of the whole was committed to the pontifex maximus; who, however, neglecting the trust, let things run to great confusion. And thus the Roman year stood till Julius Cæsar reformed it. See CALENDAR.

The ancient *Egyptian* year, called also the year of Nabonassar, on account of the epocha of Nabonassar, is the solar year of 365 days, divided into 12 months of 30 days each, besides five intercalary days added at the end. The names, &c. of the months are as follows: 1. Thoth. 2. Paophi. 3. Athyr. 4. Chojac. 5. Tybi. 6. Mecheir. 7. Phamenoth. 8. Pharmuthi. 9. Pachon. 10. Pauni. 11. Epiphi. 12. Mesori; beside the ἡμεραι ἐπαγομεναι.

The ancient *Greek* year was lunar; consisting of 12 months, which at first had 30 days apiece; then alternately 30 and 29 days, computed from the first appearance of the new moon; with the addition of an embolismic month of 30 days every 3d, 5th, 8th, 11th, 14th, 16th, and 19th year of a cycle of 19 years; in order to keep the new and full moons to the same terms or seasons of the year. Their year commenced with that new moon, the full moon of which comes next after the summer solstice. The order, &c. of their months was thus: 1. Ἑκατομβαιων, containing 29 days. 2. Μηταγειτνιων, 30. 3. Βοηδρομιων, 29. 4. Μαιμακτηριων, 30. 5. Πυανεψιων, 29. 6. Ποσειδεων, 30. 7. Γαμηλιων, 29. 8. Ανθεστηριων, 30. 9. Ελαφηβολιων, 30. 10. Μουνυχιων, 30. 11. Θαργηλιων, 29. 12. Σκιροφοριων, 30.

The ancient *Jewish* year is a lunar year, consisting commonly of 11 months, which alternately contain 30 and 29 days. It was made to agree with the solar year, either by the adding of 11, and sometimes 12 days, at the end of the year, or by an embolismic month. The names and quantities of the months stand thus: 1. Nisan, or Abib, 30 days. 2. Jiar, or Zius, 29. 3. Siban, or Siwan, 30. 4. Thammuz, or Tammuz, 29. 5. Ab, 30. 6. Elul, 29. 7. Tisri, or Ethanim, 30. 8. Marchesvam, or Bull, 29. 9. Cisleu, 30. 10. Tebeth, 29. 11. Sabat, or Schebeth, 30. 12. Adar, in the embolismic year, 30. Adar, in the common year, was but 29. Note, in the defective year, Cisleu was only 29 days; and in the redundant year, Marchesvam was 30.

The *Persian* year is a solar year of about 365 days; consisting of 12 months of 30 days each, with five intercalary days added at the end.

The *Arabic*, *Mahometan*, and *Turkish* years, called also the year of the Hegira, is a lunar year, equal to 354 days 8 hours and 48 minutes, and consists of 12 months, which contain alternately 30 and 29 days.

The *Hindu* year differs from all these, and is indeed different in different provinces of India. The best account that we have of it is by Mr. Cavendish, in the Phil. Trans. of the Royal Society of London for the year 1792.

YEARS, in the plural, often denote old age.

YEAR AND DAY, is a time that determines a right in many cases; and in some works an usurpation, and in others a prescription; as in case of an estray, if the owner, proclamation being made, challenges it not within the time, it is forfeited.

So is the year and day given in case of appeal; in case of descent after entry or claim, if no claim upon a fine or writ of right at the common law; so of a villain remaining in ancient demesne; of a man sore bruised or wounded; of protections; essoins in respect of the king's service; of a wreck; and divers other cases. Co. 6. Rep. fol. 107.

YEAR BOOKS, reports in a regular series, from Edward II. inclusive, to the time of Henry VIII. which were taken by the prothonotaries of the court, at the expence of the crown, and published annually.

YEAR DAY AND WASTE, is a part of the king's prerogative whereby he challenges the profits of their lands and tenements for a year and a day that are attainted of petty treason or felony; whoever is lord of the manor where the lands or tenements belong; and not only so, but in the end may waste the tenements, destroy the houses, root up the woods, garden, and pasture, and plough up the meadows, except the lord of the fee agrees with him for redemption of such waste, afterward restoring it to the lord of the fee. Staundf. Prærog. c. 16.

YE'ARLING. *a.* (from *year.*) Being a year old (*Pope*).

YE'ARLY. *a.* (from *year.*) Annual; happening every year; lasting a year (*Prior*).

YE'ARLY. *ad.* Annually; once a year (*Shakspeare*).

To YEARN. *v. n.* (eaꞃnan, Saxon.) To feel great internal uneasiness (*Genesis*).

To YEARN. *v. a.* To grieve; to vex (*Shaks.*).

YEAST, or BARM, is the froth or scum which rises on beer during the act of fermentation. See BARM.

Yeast is an article of the greatest importance in domestic economy; forming a necessary ingredient in bread, which would otherwise become heavy and unwholesome. As it cannot at all times be obtained in sufficient quantities, we propose to state various methods which have been contrived for generating and preserving this commodity.

In the 2d vol. of the Memoirs of the Philosophical and Literary Society of Manchester, Mr. Henry has published a method of preparing artificial yeast, by which good bread may be made, without the aid of any other ferment. He directs flour and water to be boiled to the consistence of treacle; and, when the mixture is cold, to saturate it with fixed air. Next, it must be poured into large bottles with narrow mouths, which should be loosely covered with paper; and, over this, with a slate, and a weight to keep them steady. The bottles ought now to be placed in a room, the temperature of which is from 70 to 80°; and the mixture be stirred two or three times in the course of 24 hours. At the end of about two days, according to Mr. H. such a degree of fermentation will have ensued, that the mixture acquires the consistence of yeast. In this state, the flour intended to be made into bread must be incorporated with such artificial barm, in the proportion of 6 lbs. of the former to one quart of the latter, and a due quantity of warm water. The whole is now to be kneaded together in a proper vessel, covered with a cloth, and suffered to stand for 12 hours, or till it be sufficiently fermented; when it should be formed into loaves, and baked. Mr. Henry adds, that this yeast would be more perfect if a decoction of malt were substituted for water.

A simple decoction of malt, however, is now fully proved to be convertible into yeast, fit for brewing: this discovery was made by Mr. Joseph Senyor, on whom the Society for the Encouragement of Arts, in the year 1790, conferred a bounty of 20*l*. He directs three wooden or earthen vessels to be procured, one being capable of holding two quarts, the other three or four, and the third five or six quarts. A quarter of a peck of malt is then to be boiled for eight or ten minutes, in three pints of water; when one quart must be poured off the grains into the first vessel: as soon as the liquor becomes cool, such vessel ought to be removed towards the fire, or to a temperature of about 70 or 80° of Fahrenheit's thermometer. In the course of 30 hours the fermentation will commence; when two quarts of a similar cool decoction (made, we suppose, from the same malt) must be mixed with this yeast, in the second, or larger vessel; and be repeatedly stirred in the manner practised in common vats. As the fermentation increases a greater portion of the like decoction must be added, and be worked in the largest vessel: thus, at length, a sufficient quantity of yeast will be produced for brewing 40 gallons of beer.

This useful contrivance of Mr. Senyor is farther confirmed by the recent experiments of a correspondent, whose plain and interesting account we are induced to quote in his own words: "I caused (says he) a gallon of rather weak wort to be made; with part of which, when cool, I filled the middle part of Nooth's machine: as soon as it was thoroughly saturated with fixed air, I mixed the whole and placed it in a wooden vessel near the fire, the weather being rather cool. In about 24 hours there were some faint signs of fermentation; yet, at the expiration of the fourth day, I obtained no more than two table-spoonfuls of very indifferent yeast; and the wort had become extremely offensive. As the yeast was not only very poor, but in too small a quantity for any domestic purpose, I made an infusion of malt, and a decoction of hops, in the manner used among the inhabitants of the island of Jersey, when they find it necessary to increase a small quantity of brewer's yeast. To this preparation I added my two spoonfuls of yeast; let the mixture stand 24 hours; then poured off the watery part; mixed the sediment with an increased proportion of the malt and hops; which fermented, and produced yeast enough to work a gallon of strong beer, that yielded a pint of very fine yeast, of which excellent bread was made. Having some reason to suspect that the fixed air was of little or no use in this experiment, and that a wort might be made which would ferment of itself, before the liquor were spoiled by too long keeping, I caused to be made four gallons of good wort, rather above porter strength, well hopped, and with a considerable quantity of colour, and treacle, to preserve it from putrefaction. It was equally divided, one-half impregnated with fixed air, as in the first experiment: each was put into a wooden vessel; and both were placed in an equally warm situation. At the expiration of 24 hours, there being no signs of fermentation, I stirred in a tea-spoonful of salt, and shook a little flour on the surface of each. In 12 hours more, the unimpregnated wort shewed some appearance of fermentation, which went off, and was renewed by placing the liquor near the fire; and at the 74th hour it had a tolerably good head of yeast; but the impregnated wort was only beginning to ferment. In 24 hours after, we took a pint of yeast from the wort which was not impregnated with fixed air, and about a tea-cupful from the other, which was as inferior in quality as in quantity. The worts were then mixed, put into other vessels, and bid fair to become excellent beer.—I cannot say that this is a very expeditious mode of making yeast; but I believe it is a sure one, and within the power of every person who can procure the necessary ingredients for making good beer."—Our correspondent, therefore, conceives to have proved by this experiment, that fixed air is, at least, not requisite to produce a fermentation in beer.

Dr. Lettsom (Hints for promoting Beneficence, &c. 1797) recommends the following preparation as a substitute for yeast: boil 4 oz. of flour in two quarts of water, for half an hour; and sweeten it with 3 oz of Muscovado sugar. When the mixture is nearly cold, pour it on four spoonfuls of yeast, into an earthen or stone jar sufficiently deep to admit the new barm to rise: it must now be well shaken; placed near the fire for one day; and then the thin liquor be poured off the surface. The remainder is next to be agitated, strained, closed up for use, and kept in a cool place. Some of the yeast thus prepared ought always to be preserved, for renewing or making the next quantity that may be wanted.

The following method of preparing excellent yeast we state from the Transactions of the Economical Society of Petersburgh, on the authority of baron Von Mestmacher: when the wort is made, and it becomes necessary to provide yeast for its fermentation, he directs 40 gallons to be drawn off into a vessel provided with a lid, and capable of holding one-third more than that quantity. Next, 7 lbs of leaven are to be dissolved in a little wort, and mixed with the 40 gallons: 17 lbs. of rye-meal, and an equal quantity of ground malt, must now be added, by agitation for some minutes, and suffered to stand for half an hour. At the end of that time, a spoonful of the best yeast ought to be incorporated with this compound; the lid be placed upon the vessel; and the whole remain undisturbed for 48 hours; when the mixture will be found converted into 60 gallons of remarkable good barm.

In the 1st vol. of Annals of Agriculture, Mr. Kirby suggests mealy potatoes to be boiled till they become perfectly soft; in which state they must be mashed with hot water, so as to acquire the consistence of yeast. Two ounces of coarse sugar, or molasses, are then to be added to every pound of potatoes; and, when the mixture is luke-warm, two spoonfuls of barm must be stirred into it, according to the proportion above stated. This composition should now be removed towards the fire, or to a warm place, till the fermentation cease; when a certain portion may be kneaded with flour, which ought to stand eight hours before it is baked.—Mr. K. observes, that every pound of potatoes thus managed produces nearly a quart of yeast, which will remain good for three months.—The roots, however, ought, in the opinion of Mr. Bordley, to be perfectly ripe and well-sprouted; as in the contrary case no fermentation will ensue.

Similar to this preparation is the substitute for yeast contrived by Mr. Richard Tillyer Blunt; in consequence of which he obtained a patent, in October, 1787.—He directs 8 lbs. of potatoes to be boiled in water, in the same manner as for the table: after which they must be mashed; and, while they are warm, 2 oz. of honey, or other saccharine matter, and one quart of common yeast, should be added.—Three pints of this compound are sufficient, with the aid of warm water, for making the sponge; and, when this begins to sink, the dough ought to be formed into loaves and baked.

An useful substitute for yeast may be obtained by nearly filling a bason or tea-cup with bruised or split pease, and pouring on them boiling water: the whole is now to be set on the hearth, or other warm place, for 24 or 48 hours, according to the temperature of the season: at the end of that time, a froth, possessing all the properties of yeast, will appear on the surface of the fluid. This method, we understand, is commonly practised in the eastern countries; and the barm thus procured is said to render the bread light and palatable.

To the different modes of procuring yeast already specified we shall add an easy and expeditious process, which appears to be very plausible; and has lately been communicated to the editor by an anonymous correspondent; though he cannot vouch for its success.—Take six quarts of soft water, and two handfuls of wheaten or barley-meal; stir the latter in, before the mixture is placed over the fire, where it must very gradually simmer, and at length boil, till two-thirds of the fluid be evaporated, so that it may consist of two quarts. When this decoction becomes cool, incorporate with it (by means of a whisk) a powder consisting of two drachms of salt of tartar, and one drachm of cream of tartar, previously mixed. The whole should now be kept in a warm place.—Thus, a very strong yeast for brewing, distilling, and baking, is said to be obtained. For the last mentioned purpose, however, such barm ought to be first diluted with pure water, and passed through a sieve, before it be kneaded with the dough; in order to deprive it of its alkaline taste.

The preservation of yeast, for a considerable time, is an object of equal importance to that of producing it artificially: hence, it has been recommended to put a quantity of that commodity into a canvas bag, and to submit the whole to the action of a screw-press, so as to deprive it of all moisture; in consequence of which, the barm will remain in the bag, as firm and tough as clay: in this state it must be packed in casks, well secured from the access of air, and may be kept in a sound state for any period of time. We believe, however, it would be more safe and advisable to form the pasty yeast into circular, flat vessels, resembling tea-saucers, and in that state to dry the whole mass, either in the open air under shade, or in the moderate warmth of a baker's oven.

Mr. Felton Mathew's mode of separating beer from yeast, and preserving the latter (for which he obtained a patent, in February, 1796), in many respects corresponds with that just described: the principal difference is, that he directs the bags to be placed in troughs perforated with holes, to prevent the former from bursting; and then to submit them to the action of a lever, aided by incumbent weights. When the beer is thus expressed, the yeast remaining in the bags will crumble into coarse powder: this must be spread on canvas, hair-cloth, or similar porous material, and gradually dried in a malt-kiln, or in any room or stove, where a regular temperature of from 80 to 90 degrees is maintained; and, lastly, as soon as it becomes perfectly dry, the barm must be packed in bottles or casks, from which the air is completely excluded.

Another mode of preserving yeast consists in throwing a withy, or the young shoots of willows twisted together, *into* the vessel where the yeast is working; and suspending them in a warm room till the next opportunity of brewing arrives. We conceive, however, the following expedient to be preferable, both in point of cleanliness and economy; it being successfully practised by some careful housewives:—Take a clean wooden bowl, of such size as may be most convenient; spread a regular coating of yeast around its inner surface; and, as often as this dries, repeat the process, till a thick cake be formed: the vessel must be kept in a dry place. When any barm is wanted, a small piece may be cut out; and after dissolving it in warm water, the solution will answer all the purposes of fresh yeast, whether designed for baking or for brewing.

The following process being advantageously employed in Germany, for preserving barm, so as to be fit for all domestic uses, after a considerable time, we have inserted it for the benefit of our country readers: When the yeast is taken from new beer, it must be put into a clean linen bag, and be laid in a vessel half full of dry sifted wood-ashes: the whole is then to be covered to the thickness of three or four inches with similar ashes, and be pressed together. In this situation the barm should remain for a day, or longer, if it be necessary; when the ashes will absorb all the moisture, and the yeast acquire the consistence of a thick paste. It must now be formed into small lumps, or balls; dried in a moderate heat; and kept in bags, in an airy, dry place: when any barm is wanted, a few of such balls may be dissolved in warm water; or, which is preferable, in beer; and they will answer every purpose of fermentation.

Besides its utility in baking and brewing, late experiments have fully proved, that yeast is of singular efficacy in putrid fevers, putrid sore throats, and similar malignant complaints: for the first discovery of this important fact we are indebted to the Rev. Edmund Cartwright. The dose of barm, according to his experience, and that of other practitioners, is two large spoonfuls, to be repeated every three hours; in some cases this has been sufficient; but, in others, it was necessary to administer the Peruvian bark, between each dose. In a few instances, indeed, emetics and laxatives were given previously to taking the yeast; but, in general, this simple remedy seldom failed to effect a cure; provided due attention was bestowed on the diet and regimen of the patient.

Yeast consists of gluten, sugar, and mucilage, with some alcohol, and a portion of malic, acetic, and carbonic acids; but the essential parts of yeast are gluten mixed with a vegetable acid, and therefore dried yeast, which must have lost some of its component parts, is fit for fermentation equally with that which is fresh and new.

YELK. *s.* (from ȝealepe, *yellow*, Saxon.) The yellow part of the egg. It is commonly pronounced, and often written, *yolk* (*Brown*).

To YELL. *v. n.* To cry out with horrour and agony (*Spenser*).

Yell. *s.* A cry of horrour (*Dryden*).

Yell, one of the Shetland islands, to the N. of that called Mainland. It is twelve miles long and eight broad, and has several good harbours.

YELLOW, one of the original colours of light. See Colour.

Yellow fever. See Febris continua.

Yellow-hammer, in ornithology. See Emberiza.

Yellow-shanks, in ornithology. See Scolopax.

Yellow-pole, in ornithology. See Motacilla.

Yellow-tail, in ichthyology. See Scomber.

Yellow saunders. See Santalum album.

Yellow river, or Hoang-ho, a large river of Asia, which, after a course of nearly 600 leagues across Tartary and China, enters the Eastern sea, to the N. of the mouth of the Yan-tse-kiang. It is very broad and rapid, but so shallow, that it is scarcely navigable. It is called the Yellow river, because the clay and sand which it washes down, especially in time of rain, makes its water appear of a yellow colour.

Yellow (Naples), a fine pigment, so called from the city in which it was long prepared. It has the appearance of an earth, is very friable, heavy, porous, and not altered by exposure to the air. The preparation is kept a secret, but by analysis it is found to be a metallic oxyd. A similar pigment may be produced by mixing twelve parts of ceruss, three of a diaphoretic antimony, and of alum and sal-ammoniac one part each: heat them for some time to a temperature below redness, and afterwards in a red heat for three hours longer, after which the mass will have acquired a beautiful yellow colour.

Yellow sea, a gulf of China, between the provinces of Pe-tcheli and Chang-tong on the W. and the peninsula of Corea on the E.

YE'LLOWISH. *a.* (from *yellow.*) Approaching to yellow (*Woodward*).

YE'LLOWISHNESS. *s.* (from *yellowish.*) The quality of approaching to yellow (*Boyle*).

YE'LLOWNESS. *s.* (from *yellow.*) 1. The quality of being yellow (*Arbuthnot*). 2. It is used in *Shakspeare* for jealousy.

To YELP. *v. a.* (ȝalpan, Sax.) To bark as a beagle-hound after his prey (*Shakspeare*).

YENISEI, or Jenisa, a river of Siberia, which running from S. to N., enters the Frozen ocean, to the E. of the bay of Oby.

YENISEISK, or JENISKOI, a large and populous town of Siberia, in the province of Tomsk, seated on the river Yenisei. Lon. 92, 35 E. Lat. 57. 46 N.

YEN-PING-FOU, a city of China, in the province of Fokien. It has in its district seven cities of the third class, and is seated on the brow of a mountain, at the foot of which is the river Minho. It is 275 miles S. of Nanking.

YEN-TCHEOU-FOU, a city of China, in the province of Chang-tong. Its district contains four cities of the second and 23 of the third class; and it is seated between two rivers, 275 miles S.E. of Pekin.

YEOMEN, the first or highest degree among the plebeians of England, next in order to the gentry. The yeomen are properly freeholders, who having land of their own, live on good husbandry.

Yeomen is also a title of office in the king's household, of a middle place or rank between an usher and a groom.

Yeomen of the guard were anciently 250 men of the best rank under gentry, and of larger stature than ordinary, each being required to be six feet high. At present there are but 100 yeomen in constant duty, and 70 more not on duty; and as any of the 100 dies, his place is supplied out of the 70. They go dressed after the manner of king Henry VIII.'s time. They formerly had diet as well as wages when in waiting; but this was taken off in the reign of queen Anne.

Yeoman-pricker, is a part of the royal

retinue annexed to his majesty's hunting establishment. Of these there are six, whose official department is to be subordinate to the huntsman, and to execute his orders in all matters relative to the stag hounds, whether at their exercise and airings, or during the chase. See King's hounds, and Stag hunting.

YEOVIL, or Ivel, a corporate town in Somersetshire, with a market on Friday. Here is a manufacture of cloth, but the principal one is of gloves. It is seated on the Ivel, 20 miles S. of Wells, and 123 W. by S. of London. Lon. 2. 37 W. Lat. 50. 55 N.

To YERK. *v. a.* To throw out or move with a spring. A horse is said to *yerk*, when he flings and kicks with his whole hind quarters (*Farrier's Dictionary*).

Yerk. *s.* (from the verb.) A quick motion.

To YERN. *v. a.* See Yearn.

YES. *ad.* (ᵹıꞅe, Saxon.) 1. A term of affirmation; the affirmative particle opposed to *no* (*More*). 2. It is a word of enforcement: even so; not only so, but more (*Pope*).

YESD, a town of Persia, in Irac Agemi, on the road from Kerman to Ispahan. It has a silk manufacture; and here are made the finest carpets in the world. It is 200 miles E.S.E. of Ispahan. Lon. 56. 50 E. Lat. 32. 0 N.

YEST. See Yeast.

YE'STER. *a.* (*ghister*, Dutch.) Being next before the present day (*Dryden*).

YE'STERDAY. *s.* (ᵹeꞅꞇaꞃꝺæᵹ, Saxon.) The day last past; the day next before to-day (*Shakspeare*).

Ye'sterday. *ad.* On the day last past (*Bacon*).

YESTERNI'GHT. *s.* The night before this night.

Yesterni'ght. *a.* On the night last past (*Shakspeare*).

YE'STY. *a.* (from *yest.*) Frothy; spumy; foamy (*Shakspeare*).

YET. *conjunct.* (ᵹẏꞇ, ᵹeꞇ, ᵹeꞇa, Saxon.) Nevertheless; notwithstanding; however (*South*).

Yet. *ad.* 1. Beside; over and above (*Atterbury*). 2. Still; the state still remaining the same (*Addison*). 3. Once again (*Pope*). 4. At this time; so soon; hitherto (*Bacon*). 5. At least (*Baker*). 6. It denotes continuance and extension, greater or smaller; *the storm grew louder and* yet *louder* (*Dryden*). 7. Still; in a new degree (*L'Estrange*). 8. Even; after all (*Bacon*). 9. Hitherto (*Hooker*).

YE'VEN, for *given* (*Spenser*).

YEW. *s.* (ıƿ, Saxon; *yw*, Welsh.) A tree of tough wood, used for bows. See Taxus.

YE'WEN. *a.* (from *yew.*) Made of the wood of yew (*Spenser*).

YEX. *s.* (See Yux.) The hiccough.

To Yex. *v. n.* To have the hiccough.

YFE'RE. *ad.* (ẏꝼeꞃe, Saxon.) Together (*Spenser*).

To YIELD. *v. a.* (ᵹelꝺan, Saxon, to pay.) 1. To produce; to give in return for cultivation or labour (*Arbuthnot*). 2. To produce in general (*Shakspeare*). 3. To afford; to exhibit (*Locke*). 4. To give, as claimed of right (*Milton*). 5. To allow; to concede (*Hammond*). 6. To permit; to grant (*Dryden*). 7. To emit; to expire (*Genesis*). 8. To resign; to give up (*Watts*). 9. To surrender (*Knolles*).

To Yield, *v. n.* 1. To give up the contest; to submit (*Walton*). 2. To comply with any person, or motive power (*Proverbs*). 3. To comply with things required or enforced (*Milton*). 4. To concede; to admit; to allow; not to deny (*Hakewill*). 5. To give place, as inferiour in excellence or any other quality (*Dryden*).

YIE'LDER. *s.* (from *yield.*) One who yields (*Shakspeare*).

YNCA, an appellation anciently given to the kings of Peru, and the princes of their blood; the word literally signifying lord, king, emperor, and royal blood.

YOKE. *s.* (ᵹeoc, Saxon; *jock*, Dutch.) 1. The bandage placed on the neck of draught oxen (*Pope*). 2. A mark of servitude; slavery (*Dryden*). 3. A chain; a link; a bond (*Dryden*). 4. A couple; two; a pair. It is used in the plural with the singular termination (*Broome*).

To Yoke. *v. a.* (from the noun.) 1. To bind by a yoke to a carriage (*Dryden*). 2. To join or couple with another (*Dryden*). 3. To enslave; to subdue (*Shakspeare*). 4. To restrain; to confine (*Bacon.*)

Yo'ke-elm. *s.* A tree (*Ainsworth*).

YO'KEFELLOW. Yo'kemate. *s.* (*yoke* and *fellow*, or *mate.*) 1. Companion in labour (*Shakspeare*). 2. Mate; fellow (*Hudibras. Stepney*).

YOLD. for *yielded.* Obsolete (*Spenser*).

YOLK, the yellow part in the middle of an egg. (See Egg.) It contains a lymphatic substance mixed with a certain quantity of mild oil, which, on account of this mixture, is soluble in water. When exposed to heat, it assumes a consistence not so hard as the white of the egg; and when bruised gives out the oil which it contains. This oil has been used externally as a liniment.

YON. Yond. Yo'nder *a.* (ᵹeonꝺ, Sax.) Being at a distance within view (*Shakspeare. Ben Jonson. Bacon*).

Yon. Yond. Yo'nder. *ad.* At a distance within view (*Milton. Arbuthnot*).

YOND. *a.* Mad; furious: perhaps transported with rage; under alienation of mind (*Spenser*).

YONNE, a department of France, containing part of the late province of Burgundy. It is so called from a river that rises in the department of Nievre, and passing by Chateau Chinon, Clameci, Auxerre, Joigny, and Sens, falls into the Seine. Auxerre is the capital.

YORE, or *Of Yore. ad.* (ᵹeoᵹaꞃa, Saxon.) 1. Long (*Spenser*). 2. Of old time; long ago (*Pope*).

YORK, a city, the capital of Yorkshire, with an archbishop's see, and a market on Tuesday, Thursday, and Saturday. It is the Eboracum of the Romans, and many of their coffins, urns, coins, &c. have been found here. It has always been considered as the capital of the north, and, in point of rank, as the second city in the kingdom; and, although it is now surpassed in wealth and populousness by many of the more modern trading towns, it still supports a considerable degree of consequence, and is the residence of many genteel families. In 1801 the number of inhabitants was 16,145. The cathedral of St. Peter, generally called the minster, is reckoned the most elegant and magnificent Gothic structure in the kingdom, Lincoln perhaps excepted. Beside this cathedral, York contains but 17 churches in use; though in the reign of Henry V. there were 44 parish churches, 17 chapels, and nine religious houses. It is divided by the Ouse into two parts, which are united by a stone bridge of five arches, the centre one 81 feet wide; and the river is navigable to this city for vessels of 70 tons burthen, although it is 60 miles from the sea. York is surrounded by a strong wall, through which are entrances by four gates and five posterns; and it has a castle, built by William the Conqueror, which was formerly a place of great strength, but it is now a county prison for debtors and felons. Without Bootham bar stood the magnificent abbey of St. Mary, some ruins of which remain, and on the site of part of it is the manor or royal palace, built by Henry VIII., where several of our kings have lodged, though it is now neglected. York is a city and county of itself, governed by a lord-mayor, and sends two members to parliament: its county includes Ainsty Liberty, in which are 35 villages and hamlets. The guild-hall, built in 1446, is a grand structure, supported by two rows of oak pillars, each pillar, a single tree. The corporation built a mansion-house, in 1728, for the lord-mayor; and, among the modern buildings, are a noble assembly-house, designed by the earl of Burlington, and an elegant court-house, on the right of the castle; here is also a theatre-royal, and an asylum for lunatics. York is 70 miles S. by E. of Durham, and 198 N. by W. of London. Lon. 1. 1 W. Lat. 53. 59 N.

York, a town of Pennsylvania, capital of a county of the same name. It is 88 miles W. of Philadelphia. Lon. 76. 43 W. Lat. 39. 7 N.

York, a town of Massachusets, in the district of Maine. The river of the same name falls into York harbour at the town. It is 75 miles N.N.E. of Boston. Lon. 70. 40 W. Lat. 43. 7 N.

York (New), one of the United States of America, bounded on the S.E. by the Atlantic ocean; on the E. by Connecticut, Massachusets, and Vermont; on the N. by the 45° of lat. which divides it from Canada; on the N.W. by the river St. Lawrence, and the lakes Ontario and Erie; and on the S.W. and S. by Pennsylvania and New Jersey. It is 350 miles long and 300 broad, and is divided into 13 counties. New York, in general, is intersected by ridges of mountains running in a N.E. and S W. direction. Beyond the Allegany mountains, however, the country is quite level, of a fine rich soil, covered in its natural state with various kinds of trees. East of these mountains it is broken into hills and valleys: the hills are thickly clothed with timber, and, when cleared, afford fine pasture; and the valleys produce wheat, hemp, flax, peas, grass, oats, and Indian corn. Of the commodities produced from culture, wheat is the staple, of which immense quantities are raised and exported. The best lands in this province, which lie along Mohawk river, and W. of the Allegany mountains, are yet in a state of nature, or just beginning to be settled. This state abounds with several fine rivers and lakes.

York (New), a city of the United States, capital of a state of the same name. It is situate on the S.W. point of an island, at the confluence of Hudson and East rivers, and is four miles in circumference. Surrounded on all sides by water, it is refreshed by cool breezes in summer, and the air in winter is more temperate than in other places under the same parallel. York island is 15 miles in length, but hardly one in breadth; and is joined to the mainland by a bridge called King's bridge. There is no basin or bay for the reception of ships; but the road where they lie, in East river, is defended from the violence of the sea by some islands which interlock with each other; so that, except that of Rhode island, the harbour of New York, which admits ships of any burden, is the best of the United States. The number of inhabitants, in 1786, was 23,614. New York is 97 miles N.E. of Philadelphia. Lon. 74. 9 W. Lat. 40. 43 N.

York River, a river of Virginia, formed by the confluence of the Pamunky and Mattapony, 30 miles above York town, below which place it enters Chesapeak bay.

York Town, a town of Virginia, situate on the south side of York river. It has the best harbour in the state for vessels of the largest size, and is 13 miles east of Williamsburgh.

YORKSHIRE, the largest county in England, bounded on the north by Westmorland and the bishopric of Durham, east by the German ocean, south by Lincolnshire, Nottinghamshire, and Derbyshire, south-west by Cheshire, west by Lancashire, and north-west by Westmorland. It extends 90 miles from north to south, and 115 from east to west, and contains 3,698,337 acres. From its great extent it has been divided into three ridings, called the North, East, and West; and is subdivided into 26 wapentakes, and 563 parishes; has one city and 60 market-towns, and sends 30 members to parliament. The number of inhabitants in 1801 was 858,892, and in 1811 was 978,559. (See Population.) The air and soil of this extensive county vary extremely. The east riding is less healthy than the others; but this inconvenience decreases in proportion as the county recedes from the sea. On the hilly parts of this riding, especially in what is called the York wolds, the soil is generally barren, dry, and sandy; but great numbers of lean sheep are sold hence, and sent into other parts to be fattened. The west riding, which is much the largest, enjoys a sharp but healthy air, and the land on the western side is hilly, stony, and not very fruitful; but the intermediate valleys consist of much good arable ground, and pasture for the largest cattle. It also produces iron, coal, lime, jet, alum, horses, and goats. Here the clothing manufactures principally flourish. The north riding, in general, exceeds the other two in the salubrity of the air. The worst parts breed lean cattle; but, on the sides of the hills, in the valleys and plains, it produces good corn, and rich pastures for large cattle Richmondshire, on the north-west of this riding, was formerly a county of itself; here many lead mines are worked to great advantage. In Yorkshire likewise are the districts of Holderness, on the borders of the Humber; Cleveland, on the confines of Durham; and Craven, on the borders of Westmorland and Lancashire. In this last district are three of the highest hills in England, named Whernside, Ingleborough, and Pennygant, which form a sort of triangle from their tops, at the distances of about five, six, and eight miles, while their monstrous bases nearly unite. The principal rivers are the Ouse, Don, Derwent, Calder, Aire, Warf, Nidd, Ure, and Hull, and they all terminate in the Humber, which enters the German ocean, between Yorkshire and Lincolnshire.

Yorkshire sanicle. See Pinguicula.

YO-TCHEOU, a city of China, of the first rank, in Hou-quang. It is seated on the river Kian-ku, and on the lake Tong-ting, which is more than 70 leagues in circuit. The great number of barks and merchandise that are brought hither render it one of the richest cities of the empire; and the country round is full of different kinds of orange and lemon trees. It is 700 miles south by west of Peking. Lon. 112. 35 E. Lat. 29. 23 N.

YOU. *pronoun.* (eoƿ, ıuh, Saxon; of ȝe, ye.) 1. The oblique case of *ye* (*Ephesians*). 2. It is used in the nominative (*Dryden*). 3. It is the ceremonial word for the second person singular, and is always used, except in solemn language (*Pope*).

YOUGHAL, a borough and seaport of Ireland, in the county of Cork. It is surrounded by walls, and has a commodious harbour, with a well-defended quay. It has a manufacture of earthen ware, and is seated on the side of a hill, on a bay of its name, 28 miles east by north of Cork. Lon. 8. 10 W. Lat. 51. 49 N.

YOUNG. *a.* (ıonȝ, ẏeonȝ, Saxon; *jong*, Dutch.) 1. Being in the first part of life; not old (*Cowley*). 2. Ignorant; weak (*Shakspeare*).

Young. *s.* The offspring of animals collectively (*Milton*).

Young (Dr. Edward), was the son of a clergyman of the same name, and was born about the year 1679. When sufficiently qualified, he was matriculated into All Souls college, Oxford; and designing to follow the civil law, he took a degree in that profession. In this situation he wrote his poems called the Last Day, published in 1704; which coming from a layman gave universal satisfaction: this was soon after followed by another, entitled, the Force of Religion, or Vanquished Love. These productions gained him a respectable acquaintance; he was intimate with Addison, and thus became one of the writers of the Spectator: but the turn of his mind leading him to the church, he took orders, was made one of the king's chaplains, and obtained the living of Welwyn in Hertfordshire, worth about 500l. per annum, but he never rose to higher preferment. For some years before the death of the late Prince of Wales, Dr. Young attended his court pretty constantly; but upon his decease all his hopes of church preferment vanished: however, upon the death of Dr. Hales, he was taken into the service of the Princess Dowager of Wales, and succeeded him as her privy chaplain. When pretty far advanced in life he married the lady Elizabeth Lee, daughter of the late earl of Lichfield. This lady was a widow, and had an amiable son and daughter, who both died young. What he felt for their loss, as well as for that of his wife, is finely expressed in his Night Thoughts, in which the young lady is characterised under the name of Narcissa; her brother by that of Philander. He wrote three tragedies, The Revenge, Busiris, and The Brothers. His satires, called Love of Fame the universal Passion, are by many esteemed his principal performance; though Swift said the poet should have been either more angry or more merry: they have been characterised as a string of epigrams written on one subject, that tire the reader before he gets through them. His Complaint, or Night Thoughts, exhibit him as a moral and melancholy poet, and are esteemed his master-piece. They form a species of poetry peculiarly his own, and in which he has been unrivalled by all those who attempted to write in this manner. They were written under the recent pressure of his sorrow for the loss of his wife, daughter, and son-in-law; they are addressed to Lorenzo, a man of pleasure and the world, and who, as it is insinuated by some, is his own son, but then labouring under his father's displeasure. As a prose-writer, he arraigned the prevailing manners of his time, in a work called the Centaur not Fabulous; and when he was above 80 years of age, published Conjectures on Original Composition. He published some other pieces; and the whole of his works are collected in 4 and 5 vols. 12mo. Dr. Young's turn of mind was naturally solemn; yet, notwithstanding this gloominess of temper, he was fond of innocent sports and amusement. He instituted an assembly and a bowling-green in the parish of which he was rector, and often promoted the gaiety of the company in person. His wit was generally poignant, and ever levelled at those who testified any contempt for decency and religion. One Sunday preaching in office at St. James's, he found, that though he strove to make his audience attentive, he could not prevail. Upon which his pity for their folly got the better of all decorum, and he sat back in the pulpit and burst into a flood of tears. Towards the latter part of life he knew his own infirmities, and suffered himself to be in pupilage to his housekeeper; for he considered that, at a certain time of life, the second childhood of age demanded its wonted protection.

He died in 1765. "Nature (says Mr. Stockdale) had bestowed on Young an exuberant, vigorous, and original genius. It was boundless in its versatility; it was inexhaustible in its resources. But its uncommon and splendid qualities were darkened and dishonoured by their opposite characteristics. He has left us many proofs that he could be extremely injudicious; his taste was extremely vitiated. He often tires us with what I can term no better than poetical tricks or legerdemain. He is apt to prolong a forcible and shining thought to its debility and its death, by an Ovidian redundance and puerility; and he seems to have exerted the whole strength and grasp of his mind to unite remote images and thoughts, which could never have been associated but by the most elaborate affectation. By an overheated fancy breaking through every pale of judgment, he sometimes loses himself in fustian, when he imagines that he has attained sublimity."

If the commendation had been rendered a little more prominent, and the censure had occupied a rather smaller portion, in the preceding picture, it would have been exactly as we should wish to draw it.

YOU'NGISH. *a.* (from *young*) Somewhat young (*Tatler*).

YOU'NGLING. *s.* (ẏeonᵹlınᵹ, Saxon.) Any creature in the first part of life (*Brown*).

YOU'NGLY. *ad.* (from *young.*) 1. Early in life (*Shakspeare*). 2. Ignorantly; weakly.

YOU'NGSTER. YOU'NKER. *s.* (from *young.*) A young person (*Prior*).

YOUNGTH. *s.* (from *young.*) Youth: obsolete (*Spenser*).

YOUR. *pronoun.* (eopeꞃ, Saxon.) 1. Belonging to you (*Pope*). 2. YOURS is used when the substantive goes before, or is understood: as, *this is* your *book, this book is* yours (*Shakspeare*).

YOURSE'LF. *s.* (*your* and *self.*) You, even you: ye, not others (*Shakspeare*).

YOUTH. *s.* (ẏeoᵹuð, Saxon.) 1. The part of life succeeding to childhood and adolescence (*Arbuthnot*). 2. A young man (*Dryden*). 3. Young men. Collectively (*Ben Jonson*).

YOU'THFUL. *a.* (*youth* and *full.*) 1. Young (*Dryden*). 2. Suitable to the first part of life (*Pope*). 3. Vigorous, as in youth (*Bentley*).

YOU'THFULLY. *ad.* In a youthful manner.

YOU'THLY. *a.* (from *youth.*) Young; early in life: obsolete (*Spenser*).

YOU'THY. *a.* (from *youth.*) Young; youthful. A bad word (*Spectator*).

YPI'GHT. *participle.* (*y* and *pight*, from *pitch.*) Fixed (*Spenser*).

YPRES, a fortified city of the Netherlands, in Flanders, and a bishop's see. It has considerable manufactures of cloth and serges, which are the principal articles of its commerce. There is also a large fair every year in Lent. It is seated in a fertile plain on the river Ypre. Lon. 2. 48 E. Lat. 50. 51 N.

YSENDYCK, a strong town of Dutch Flanders, in the isle of Calsand, seated on a branch of the river Scheld, called Blie, eight miles east of Sluys, and 18 N.W. of Ghent. Lon. 3. 38 E. Lat. 51. 20 N.

YSSELBURG, a town of Dutch Guelderland, twelve miles east of Cleves, and 22 N.E. of Gueldres. Lon. 6. 15 E. Lat. 51. 42 N.

YSSELMOND, an island of Holland, situate between the Merwe on the north, and another branch of the Maese on the south. It has a town of the same name, near three miles west of Rotterdam.

YESSELSTEIN, a town of the United Provinces, in Holland, with a castle, seated on the river Yssel, five miles S.W. of Utrecht. Lon. 5. 5 E. Lat. 52. 7 N.

YSTAD, or YDSTAD, a seaport of Sweden, in the province of Schonen, 26 miles S.E. of Lund. Lon. 13. 44 E. Lat. 55. 22 N.

YTTROTANTALITE, in mineralogy, a species of TANTALIUM; which see.

YUCCA, in botany, a genus of the class hexandria, order monogynia. Corol campanulate, spreading; styleless; capsule three-celled. Four species; shrubs of the West Indies or America. All of them are cultivated.

1. Y. gloriosa. Common Adam's needle.
2. Y. filamentosa. Thready Virginian yucca.
3. Y. aloefolia. Aloe-leaved yucca.
4. Y. draconis. Dragon-tree-leaved yucca.

YVERDUN, a strong town of Swisserland, in the Pays de Vaud, capital of a bailiwic of the same name, with a castle, a college, and a hospital. Near the town is a sulphurous spring, with a commodious bathing-house. The principal trade is in wine, and merchandise passing between Germany, Italy, and France. It has some remains of Roman antiquities, and stands on the lake of Neuchatel, at the influx of the Orbe and Thiele, 38 miles W.S.W. of Bern. Lon. 6 59 E. Lat. 46. 44 N.

YULE. *s.* (ᵹeol, ẏeol, ẏehul, Sax.) The time of Christmas.

YUMA, or LONG ISLAND, one of the Bahama islands, in the West Indies, lying to the north of the east end of Cuba, and its north part under the tropic of Cancer. It is seventy miles in length, and ten in breadth

YUMETOS, a cluster of small islands, among the Bahama islands, lying to the S W. of Yuma.

YUNG-NING, a city of China, of the

first rank, at the north extremity of the province of Yun-nan, on the borders of Tibet, 230 miles N.N.W. of Yun-nan. Lon. 100. 24 E. Lat. 27. 50 N.

Yung-pe, a city of China, of the first rank, in the province of Yun-nan, 170 miles N.W. of Yun-nan. Lon. 100. 34 E. Lat. 26. 44 N.

Yung-ping, a city of China, of the first rank, in Pe-tche-li, on a river that enters the gulf of Leao-tong. Near it stands the fort Chun-hail, which is the key of the province of Leao-tong. This fort is near the beginning of the great wall, which is built, for a league together, in a boggy marsh, from the bulwark to the sea. Yung-ping is 115 miles east of Peking. Lon. 108. 34 E. Lat. 39. 55 N.

YUNX. Wry-neck. In zoology, a genus of the class aves, order picæ. Bill smoothish, pointed, a little incurved, weak; nostrils concave, naked; tongue very long, smooth, worm-shaped, armed at the point; tail-feathers ten, flexible; feet climbers. One species only, Y. torquilla; grey, varied with brown and blackish; belly reddish-white, with blackish spots; tail-feathers waved with black spots, streaks, and bars.

This genus is not numerous. The individuals are no where found in flocks: they arrive in the month of May, a little before the cuckoos, and are considered as the harbingers of that bird. Their food is the same, and their manners pretty similar to those of the woodpecker. They have received their English name from their awkward contorsions of the head and neck backward and forward, like the undulating motions of a reptile. The bill and toes of the wryneck resemble those of the woodpecker, and demonstrate its near affinity to that tribe. It has, however, always been considered by naturalists as forming a separate family. It is about the size of a lark; plumage a mixture of grey, black, and tawny, in waves and strokes so finely mingled and contrasted, as to produce a rich penciling, even of these sombre colours.

The wryneck has been compared to the woodcock, in its hues; but it is much more variegated. Its tints are more lively and distinct; and its feathers softer to the touch. When perched, it stands so erect, that it seems bent backwards. It retires into the trunk of a tree to rest; but does not gnaw it, like the woodpecker. Ants, which are the chief food of this bird, are not taken by the beak, but stabbed with the sharp point of its tongue, and thus drawn into the mouth. The nest is in the holes of rotten trees, which these birds line with dust. Their eggs are from eight to ten, and as white as ivory. The female, during incubation, and the young, are both fed by the male. The brood is commonly hatched about the middle of June. The young are soon capable of providing for themselves; when they all disperse, without shewing the smallest attachment to their parents, or to each other.

The food of these birds being ants and other insects, and therefore not easily procured, it is hardly possible to keep them in a cage. The few experiments that have been made to domesticate the wryneck have been unsuccessful. It dies with hunger, rather than submit to taste any other species of food. About the end of summer it grows remarkably fat, and is then said to be excellent eating. It has, in some parts, been called an ortolan, from its resemblance to that delicate bird. The bird-catchers take a few of them before their departure, in the beginning of September, and bring them to account in the London market. There is a variety of a rusty colour with transverse spots, beneath whitish with longitudinal yellow streaks.

YUX, the name sometimes given to the hiccough.

Z.

Z, The last letter in the alphabet, and one of the double consonants, both among the Latins and Greeks.

Its pronunciation is much more soft and obtuse than that of the *x*; which makes Quintilian call it *jucundissima*, and *dulcissima*. Nevertheless the sound was not always the same as it is now; which is but, as it were, half that of an *s*: or that, expressed by its name *izzard* or *s* hard, of an *s* uttered with closer compression of the palate by the tongue, as *freeze*, *froze*.

It had something originally in it of the *d*; but only what sounded very smoothly: thus, *Mezentius* was pronounced as if it had been *Medsentius*, &c.

The Z had also an affinity with the *g*: thus Capella; z *à Græcis venit, licet etiam ipsi primo* g *Græca utebantur.*

Z begins no word originally English; although it is found in the Saxon alphabets, set down by grammarians, it is read in no word originally Teutonic (*Johnson*).

Z was also a numeral letter, signifying two thousand; according to the verse:

Ultima Z tenens, finem bis mille tenebit.

When a dash was added at the top, $\overline{Z}$, it signified two thousand times a thousand.

This letter formerly stood as a mark for several sorts of weights. Sometimes it signified an ounce and half, and very frequently it stood for half an ounce: sometimes for the eighth part of an ounce, that is, a dram Troy-weight; and it has in earlier times been used to express the third part of an ounce, or eight scruples.

On French coins Z denotes those struck at Grenoble.

ZZ; these letters were used by some of the ancient physicians, to express myrrh. At present they are often used to signify zinziber, or ginger.

ZAARA. See ZAHARA.

ZABULON (anc. geog.), one of the twelve tribes: bounded on the north by the tribes of Asher and Napthali; on the east by the sea of Galilee; on the south by the tribe of Issachar or the brook Cison, which ran between both; on the west by the Mediterranean; so that it touched two seas, or was bimarous.

ZABULON (anc. geog.), a very strong town in the tribe of that name, on the Mediterranean, surnamed *of men*, near Ptolemais: its vicinity to which makes it probable that it was also Chabulon, unless either name is a faulty reading in Josephus: distant about 60 stadia from Ptolemais.

ZACINTHA, in botany, a genus of the class syngenesia, order polygamia æqualis. Receptacle naked; seeds of the margin incurved, of the centre straight; down very short, somewhat feathery; calyx invested with membranaceous scales. One species, a native of Italy and the Levant.

ZACYNTHUS, accompanied Hercules when he went into Spain to destroy Geryon. He was entrusted with the care of Geryon's flocks by the hero, and ordered to conduct them to Thebes. As he went on his journey, he was bit by a serpent, and some time after died. His companions carried his body away, and buried it in an island of the Ionian sea, which from that time was called Zacynthus, now called Zanthe. It is situate at the south of Cephalenia, and at the west of the Peloponnesus, and is about 60 miles in circumference.

ZAFFRE, is the oxyd of cobalt, employed for painting pottery ware and porcelain of a blue colour. The method of preparing it is as follows: the cobalt taken out of the mine is broken with hammers into pieces about the size of a hen's egg: and the stony involucrum, with such other heterogeneous matters as are distinguishable by the eye, are separated as much as possible. The chosen mineral is then pounded in stamping mills, and sifted through brass wire sieves. The lighter parts are washed off by water, and it is afterwards put into a large flat-bottomed arched furnace, resembling a baking oven, where the flame of the wood reverberates upon the ore; which is occasionally stirred and turned with long-handled iron hooks or rakes; and the process is continued till it ceases to emit any fumes. The oven or furnace is terminated by a long horizontal gallery, which serves for a chimney; in which the arsenic, naturally mixed with the ore, sublimes. If the ore contains a little bismuth, as this semi-metal is very fusible, it is collected at the bottom of the furnace. The cobalt remains in the state of a dark grey oxyd, and is called zaffre. One hundred pounds of the cobalt ore lose 20 and even 30 per cent. during this operation, which is continued 4 or even 9 hours, according to the quality of the ore. The roasted ore being taken out from the furnace, such parts as are concreted into lumps are pounded and sifted afresh. Zaffre, in commerce, is never pure, being mixed with two or rather three parts of powdered flints. A proper quantity of the best sort of these, after being ignited in a furnace, are thrown into water to render them friable, and more easily reduced to powder; which, being sifted, is mixed with the zaffre, according to the before-mentioned dose; and the mixture is put into casks, after being moistened with water. This oxyd, fused with three parts of sand, and one of pot-ash, forms a blue glass; which, when pounded, sifted, and afterwards ground in mills, included in large casks, forms smalt.

The blue of zaffre is the most solid and fixed of all the colours that can be employed in vitrification. It suffers no change from the most violent fire. It is successfully employed to give shades of blue to enamels, and to the crystal glasses made in imitation of some opaque and transparent precious stones, as the lapis lazuli, the turquois, the sapphire, and others of this kind.

ZAGARA, a famous mountain of Turkey in Europe, in Livadia, on the gulf of Corinth, near mount Parnassus, and almost always covered with snow. It was the ancient Helicon, from which issued the fountain Hippocrene, and was sacred to the Muses, who had here a temple.

ZAGRAD, a strong town of Sclavonia, capital of a county of the same name, with a bishop's see. It is seated on the Save, 25 miles N.E. of Carlstadt, and 137 S.W. of Buda. Lon. 15. 41 E. Lat. 46. 20 N.

ZAHARA, a strong town of Spain, in Andalusia, seated on a craggy rock, and defended by a citadel. It is 47 miles S.E. of Seville. Lon. 4. 55 W. Lat. 36. 52 N.

Zahara, or the Desert, a vast country of Africa, bounded on the N. by Barbary, on the E. by Fezzan and Cashna, on the S. by Tombuctoo, and on the W. by the Atlantic ocean. The air is very hot, but wholesome to the natives. The soil is generally sandy and barren, insomuch that the caravans crossing it to and from Negroland are often reduced to great extremities. The inhabitants are wild and ignorant. They have a number of petty princes; and the Mahometan religion is professed throughout the country.

ZAIN, in the manage, the French appellation for a horse of a dark colour, neither grey nor white, and without any white spot or mark upon him.

ZAIRE, a river of Congo, which rises in the kingdom of Matamba, flows N. to the extreme borders of Congo, where it turns to the W. then separates the kingdoms of Loango and Congo proper, and enters the Atlantic ocean below Sogno.

ZALEUCUS, a law-giver of the Locrians in Italy, and one of the disciples of Pythagoras, 550 B.C. He attempted to enforce his laws more by inspiring shame than dread. He had decreed, that a person guilty of adultery should lose his eyes; being shortly after informed that his son was an adulterer, he ordered the law to be executed. The people interfered, but Zaleucus resisted, and rather than violate his own institutions, he commanded one of his own eyes and one of those of his son to be put out.

ZAMA, or ZAGMA, a town of Numidia, celebrated for the victory which Scipio obtained there over Annibal, B.C. 202. Metellus besieged it, and was obliged to retire with great loss. After Juba's death it was destroyed by the Romans.

ZAMIA, in botany, a genus of the class diœcia, order polyandria. Male: ament cone-like, the scales covered underneath with pollen. Female: ament cone-like, with scales at each margin; berry solitary. Five species, natives of the Cape, West Indies, or America.

ZAMORA, a strong town of Spain, in Leon, and a bishop's see. In its environs fine turquois stones are found. It is seated on a hill, on the river Douero, over which is a bridge, 32 miles north by west of Salamanca, and 146 north-west of Madrid. Lon. 5. 56 W. Lat. 41. 50 N.

Zamora, a town of Peru, in the audience of Quito. In the neighbourhood are rich mines of gold. It is seated near the Andes, 230 miles south of Quito. Lon. 78. 20 W. Lat. 4. 6 S.

Zamora, a town of Mexico, in the province of Guadalajara, 40 miles S.E. of Guadalajara. Lon. 103. 30 W. Lat. 20. 52 N.

ZANFARA, a kingdom of Negroland, to the S. of Zegzeg, between Cassina and Bornou. The inhabitants are tall in stature, of a very black complexion, with broad faces, and savage dispositions. The capital, of the same name, stands on a river that forms a lake N. of Ghana, and thens flows through that city into the Niger. It is 230 miles N.E. of Ghana, and 450 W.S.W. of Bornou. Lon. 16. 0 E. Lat. 18. 30 N.

ZANGUEBAR, a country on the E. coast of Africa, between 3 N. and 9 S. lat. It includes several petty kingdoms, in which the Portuguese have settlements. The inhabitants are all blacks, with curled woolly hair; and, except those converted by the Portuguese, are either Mahometans or pagans, the latter much the more numerous. The principal territories are Jubo, Melinda, Mombaza, and Quiola. The Portuguese trade for slaves, ivory, gold, ostriches feathers, wax, and drugs. The inland country is represented as lying low, and intersected with woods, forests, marshes, lakes, and rivers, the latter, for the most part, covered with weeds and thickets; all which so stagnate the air, that the products of the earth are corrupted, and the inhabitants sickly and indolent. But here are rich mines of gold, easily got, by the help of which, grain, roots, fruits, &c. are purchased from other parts.

ZANNICHELLIA. Pond-weed. In botany, a genus of the class monœcia, order monandria. Male: calyxless; corolless; filament one, long, erect; anthers ovate, erect. One species, Z. palustris, common to the ditches of our own country.

ZANONIA, in botany, a genus of the class diœcia, order pentandria. Calyx three-leaved; corol five-parted. Female: styles three; berry inferior, three-celled; seeds two. One species only, a native of Malabar.

ZANTE, an island of the Mediterranean, near the coast of the Morea, 19 miles S.E. of the island of Cephalonia, belonging to the Venetians. It is about 24 miles in length, and 12 in breadth, and very pleasant and fertile; but its principal riches consist in currants, with which it greatly abounds. They are cultivated in a very large plain, under the shelter of mountains on the shore of this island; for which reason the sun has greater power to bring them to perfect maturity. The town called Zante may contain near 20,000 inhabitants; the whole island contains about 40,000. The houses are low, on account of the frequent earthquakes, for scarce a year passes without one; however, they do no great damage. The natives speak both Greek and Italian. There are very few Roman catholics among them; but they have a bishop as well as the Greeks. This place has no fortifications, but there is a fortress upon an eminence planted with cannon. In one part of this island is a place which shakes when trod upon like a quagmire; and a spring which throws out a great deal of bitumen, especially at the time of an earthquake. It serves instead of pitch to pay the bottoms of the ships, and about 100 barrels in a year are used for this purpose. There are about 50 villages in the island; but no other large town beside Zante. It is seated on the eastern side of the island, and has a good harbour. Lon. 20. 50 E. Lat. 37. 43 N.

ZANTHOXILUM. See XANTHOXILUM.

ZA'NY. *s.* One employed to raise laughter by his gestures, actions, and speeches; a merry andrew; a buffoon (*Donne*).

ZANZIBAR, an island of Africa, on the coast of Zanguebar, between the islands of Pemba and Monfia, with the title of a kingdom tributary to Portugal. It abounds in sugar-canes and citrons. The inhabitants are Mahometans. Lon. 38. 25 E. Lat. 6. 0 S.

ZAPATA, a kind of feast or ceremony held in Italy, in the courts of certain princes, on St. Nicholas's day; wherein people hide presents in the shoes or slippers of those they would do honour to, in such a manner as may surprise them on the morrow when they come to dress; being done in imitation of the practice of St. Nicholas, who used in the night-time to throw purses of money in at the windows to marry poor maids withal.

ZARA, a strong city of Venetian Dalmatia, capital of a county of the same name, with an archbishop's see, a citadel, and a harbour. It was formerly much more considerable, the circumference of the walls being now but two miles, and the inhabitants not above 6000. Near the church, which the Greeks call St. Helia, are two fluted columns of the Corinthian order, supposed to have been part of the temple of Juno. There are fine paintings in the churches, done by the best masters; and they pretend to have the body of St. Simeon, brought from Judea, and kept in a shrine, with a crystal before it. Zara is seated on a small peninsula, in the gulf of Venice, 80 miles S.W. of Jaicza, and 150 S.E. of Venice. Lon. 16. 6 E. Lat. 44. 30 N.

ZARENG, or SEGESTAN, a town of Persia, the capital of the province of Segestan, celebrated for its beautiful pottery. It is 220 miles W. of Candahar.

ZARZA, an ancient and provincial name of the sarsaparilla.

ZAWEH, a town of Persia, in the province of Khorasm, situate on the Tedjen, about 20 miles from the Caspian sea, 80 miles N. of Mesched, and 135 N.N.E. of Astrabad.

ZBARAZ, a town of Poland, in Podolia, 70 miles N. by W. of Kaminieck.

ZBOROW, a town of Austrian Poland, in the palatinate of Lemburg. Here, in 1649, John Casimir, king of Poland, with 20,000 men, was attacked in his camp by 110,000 Cossacs and Tartars, for three days successively, but defended himself so bravely, that the latter were glad to consent to terms of accommodation. Zborow is 25 miles W. of Zbaraz, and 52 E. by S. of Lemburg. Lon. 25. 46 E. Lat. 49. 46 N.

ZEA. Maize. Indian corn. Turkey wheat. In botany, a genus of the class monœcia, order triandria. Male: calyx a two-flowered glume; corol a two-valved glume, awnless. Fem.: calyx a one-flowered glume; corol a two-valved glume; style one, pendulous, filiform; seeds solitary, immersed in an oblong receptacle. Two species.

1. Z. curagua. Leaves serrate. A native of Chili.

2. Z. mays. Leaves very entire. A native of America. This is cultivated not only in America but in many parts of Europe, especially in Italy and Germany. There are many varieties, which differ in the colour of the grain, and are frequently raised in our gardens by way of curiosity, whereby the plant is well known. It is the chief bread corn in some of the southern parts of America, but since the introduction of rice into Carolina it is but little used in the northern colonies. It makes a main part too of the food of the poor people in Italy and Germany. This is the sort of wheat mentioned in the book of Ruth, where it is said that Boaz treated Ruth with parched ears of corn dipped in vinegar. This method of eating the roasted ears of Turkey wheat is still practised in the East; they gather in the ears when about half ripe, and having scorched them to their minds, eat them with as much satisfaction as we do the best flour bread.

In several parts of South America they parch the ripe corn, never making it into bread, but grinding it between two stones, mix it with water in a calabash, and so eat it. The Indians make a sort of drink from this grain, which they call bici. This liquor is very windy and intoxicating, and has nearly the taste of sour small beer: but they do not use it in common, being too lazy to make it often; and therefore it is chiefly kept for the celebration of feasts and weddings, at which times they mostly get intolerably drunk with it. The manner of making this precious beverage is to steep a parcel of corn in a vessel of water, till it grows sour, then the old women, being provided with calabashes for the purpose, chew some grains of the corn in their mouths, and spitting it into the calabashes, empty them, spittle and all, into the sour liquor, having previously drawn off the latter into another vessel.

The chewed grain soon raises a fermentation, and when this ceases, the liquor is let off from the dregs, and set by till wanted. In some of the islands in the South Sea, where each individual is his own lawgiver, it is no uncommon thing for a near relation to excuse a murderer, for a good drunken bout of ciri.

ZEAL. *s.* (ζηλος, Greek; *zelus*, Lat.) Passionate ardour for any person or cause.

ZEALAND, or **Zeeland**, an island of Denmark, of a triangular form, 230 miles in circumference, and the largest of the isles belonging to the king of Denmark. It lies at the entrance of the Baltic, having the Categat on the north, the Sound on the east, and the Great Belt on the west. The coast is much intersected by large bays; and within the country are several lakes, which, as well as the rivers, abound in fish. It is exceedingly fertile; producing grain of all sorts, with excellent pasture, and in most parts plenty of wood. It is particularly famous for its breed of horses. Copenhagen is the capital of this island, and of the whole kingdom.

Zealand, a province of Holland, bounded on the north by the isles of Holland, east by Dutch Brabant, south by Flanders, and west by the German ocean. It is composed of several islands, the principal of which are Walcheren, Schowen, N. and S. Beveland, Tolen, Duyveland, and Wolfersdike. The inhabitants are at a great expence to defend themselves from encroachments of the sea, in keeping up their dikes. The river Scheldt forms the most of these islands; and the soil of them is fruitful. The principal towns are Middleburgh and Flushing.

Zealand (New), an island in the Pacific ocean, discovered by Tasman, in 1642. He traversed the east coast, from lat. 34 to 43 south, and entered a strait; but being attacked by the natives, soon after he came to an anchor, in the place to which he gave the name of Murderers bay, he did not go on shore. He called the country Staten Land, though it has been generally distinguished in our maps by the name of New Zealand. From the time of Tasman, the whole country, except that part of the coast seen by him, remained altogether unknown, and was by many supposed to make part of a southern continent, till 1770, when it was circumnavigated by Cook, who found it to consist of two large islands, separated by a strait four or five leagues broad, to which he gave his own name. On the west side of this strait is Queen Charlotte Sound, which was made a principal place of rendezvous in his subsequent voyages. Along the coast are many small islands, and it is indented by deep bays, affording excellent shelter for shipping; and there are also several rivers capable of receiving large vessels. The southernmost island is for the most part mountainous and barren, as far inland as the eye can reach; but the land bordering on the sea-coast is clothed thick with wood, almost down to the water's edge. The northernmost island has a much better appearance; for the hills and mountains are covered with wood, and every valley has a rivulet of excellent water. The soil of these valleys, and the plains, of which there are many overgrown with wood, is in general light, but fertile. The winters are milder than in England, and the summers not hotter, though more equally warm. There are forests of vast extent, full of the straightest and largest timber, fit for buildings of any kind. Wild celery, and a kind of cresses, grow plentifully in almost every cove. Yams, sweet potatoes, and cocoas, are raised by cultivation. Cook, in 1773, planted several spots of ground with European garden seeds; and, in 1777, in several of these spots, although totally neglected and overrun by weeds, were found cabbages, onions, leeks, purslain, raddishes, mustard, &c. and a few fine potatoes, greatly improved by change of soil. In other places every thing had been rooted out to make room for temporary villages. The only quadrupeds are dogs and rats: the former are domestic, and for food; and the latter, though not numerous, seem also to be eaten. The birds, like the vegetable productions, are almost entirely peculiar to the country. Cook introduced European poultry, and, on his last visit, had the satisfaction to find them increased, both in a wild and domestic state, beyond all danger of being ever exterminated. The men are stout, well made, and fleshy; but none of them corpulent, like the inhabitants of Otaheite; and they are exceedingly vigorous and active. The women possess peculiar graces of form and person. The bodies of both sexes are marked with black stains, called amoco, which is the same as tattowing at Otaheite. Their dress consists of an oblong garment, about five feet long and four broad: they bring two corners of it over their shoulders, and fasten it on the breast with the other part, which covers the body; and about the belly it is again tied with a girdle of mat. They ornament their heads with feathers, pearl-shells, bones, &c. The women sometimes wear necklaces of shark's teeth, or bunches of long beads made of bones or shells. Their houses are miserable lodging places; and their only furniture is a few small baskets, in which they put their fishing-hooks and other trifles. Their food consists chiefly of fish; and, instead of bread, they eat the root of a kind of fern, which they scorch over the fire, and then beat with a stick till the dry outside falls off. Beside their dogs they also contrive to kill birds. Their cookery consists wholly in roasting and baking, which latter is performed in the same manner as at Otaheite. The women eat in common with the men, and their method of feeding corresponds with the nastiness of their persons. From Cape Kidnappers, in lat. 39. 43. for upwards of eighty leagues to the northward, the people acknowledge one sovereign, called Teratu, and under him several subordinate chiefs, to whom great respect is paid; but whether his authority be hereditary or delegated is uncertain. This part of the coast is much the most populous; tillage, weaving, and the other arts of peace, being best known, and most practised. The canoes are more decorated, the plantations more numerous, and the clothes and carving finer, than any where else. In other parts, they are scattered along the coast, in single families, or in larger tribes, and each in a state of perpetual hostility. For such continual wars, and the inhuman banquet that is the consequence of victory, among a people in other respects mild and gentle, perhaps no better reason can be assigned than what at first originated in necessity, has been perpetuated by habit, and exasperated by revenge. Upon the whole, there is little room to doubt that these people are cannibals. These two islands lie between lat. 34. and 48 S. and lon. 166. and 180 E.

Zealand tea (New). See Philadelphus.

ZEA'LOT. *s.* (*zeloteur*, French; ζηλωτης.) One passionately ardent in any cause (*Sprat*).

ZEA'LOUS. *a.* (from *zeal.*) Ardently passionate in any cause (*Taylor*).

ZEA'LOUSLY. *ad.* (from *zealous.*) With passionate ardour (*Swift*).

ZEA'LOUSNESS. *s.* (from *zealous.*) The quality of being zealous.

ZEBID, a city of Arabia, in the province of Yemen. It was once very considerable, but its walls are demolished, and the present buildings scarcely occupy the half of its ancient extent. It is seated on a river, 10 miles from the Red sea, and 140 N. of Mocha. Lon. 44. 28 E. Lat. 15. 10 N.

ZEBRA, in mastiology. See Equus.

ZEBU, or Cebu, one of the Philippine islands in the Indian ocean, between those of Leyte and Negro's. It is 140 miles long and 30 broad.

Zebu, in mastiology. See Bos.

ZECHARIAH, one of the minor prophets, who prophesied in the reign of Darius Hystaspes. The design of the first part of Zechariah's prophecy, like that of his contemporary, Haggai, is to encourage the Jews to proceed with rebuilding the Temple, by giving them assurance of God's aid and protection. From this he proceeds to foretel the glory of the Christian church (the true temple of God), under its great High-priest and Ruler, Jesus Christ; of whom Zerubbabel and Joshua were figures. He treats of his death, sufferings, and kingdom, in many particulars not mentioned by any other of the minor prophets before him; every thing relating to those great events becoming more explicit, in proportion as their accomplishment drew nearer. His style, like that of Haggai, is for the most part prosaic, especially towards the beginning; the last six chapters are more elevated; for which reason, among others, these six chapters are, by many commentators, ascribed to the prophet Jeremiah.

Mede, in his remarks on Matt. xxvii. 9, 10. Epist. 31, says: "It may seem the Evangelist would inform us that those latter chapters ascribed to Zachary (namely, the 9th, 10th, 11th, &c.) are indeed the prophecies of Jeremy; and that the Jews had not rightly attributed them. Certainly, if a man weigh the contents of some of them, they should in all likelihood be of an older date than the time of Zachary; namely, before the captivity: for the subjects for some of them were scarce in being after that time. And the chapter, out of which St. Matthew quotes (ch. xi.), may seem to have somewhat much unsuitable with Zachary's time; as a prophecy of the destruction of the temple, then when he was to encourage them to build it. And how doth the sixth verse of that chapter suit with his time? There is no scripture saith they are Zachary's; but there is scripture saith they are Jeremy's, as this of the Evangelist. As for their being joined to the prophecies of Zachary, that proves no more they are his, than the like adjoining of Agur's proverbs to Solomon's proves they are therefore Solomon's; or, that all the psalms are David's, because joined in one volume with David's Psalms." Bishop Kidder adopts the same opinion, and employs it to silence the objection of the Jews against the supposed erroneous citation in Matt. xxvii. 9, 10. See Kidder's Messias, part ii. cap. 3. p. 199, vol. ii. 8vo. edition. See also Hammond on Hebrews, viii. 9; Newcome's Minor Prophets; and Smith's valuable little work on the Writings of the Prophets.

ZECHIN. See Sequin.

ZED, the name of the letter *z*.

ZEDIC, a town of Barbary, principal place of a district, in the country of Tripoli. It is seated on a bay of the Mediterranean, to which it gives name, 180 miles E.S.E. of Tripoli.

ZEDOARIA. (*vox sinensis.*) Zedoary. The roots of this plant, the amomum zedoaria of Linnéus, are brought to us in long pieces about the thickness of the little finger, two or three inches in length, bent, rough, and angular, or in roundish pieces about an inch in diameter, of an ash colour on the outside, and white within. They have an agreeable camphoraceous smell, and a bitterish aromatic taste. Though formerly much esteemed against rheumatic affections, they are at present thought to possess very little medicinal powers, although they have a place in the confectio aromatica of the London Pharmacopœia. See Amomum.

ZEGEDIN, or Szeged, a strong town of Hungary, situate near the confluence of the Maros and Theisse, 60 miles N.W. of Temeswar, and 68 N. of Belgrade. Lon. 21. 5 E. Lat. 46. 8 N.

ZEGZEG, a kingdom of Negroland, lying on the river Niger, by which it is separated, on the north, from the empire of Cashna. On the east it is bounded by Zanfara, on the south by Benin, and on the west by unknown desarts. It consists partly of plains and partly of mountains. The latter are extremely cold, while the former are intolerably hot; but abound with water, and are exceedingly fruitful.

ZEIGHENHEIM, a town of Germany, in the landgravate of Hesse Cassel, 30 miles S. of Cassel. Lon. 9. 19 E. Lat. 50. 52 N.

ZEITZ, a town of Upper Saxony, in the duchy of Naumburg, with a castle, and a well-frequented college. It is seated on the Ester, 25 miles S.W. of Leipsick, and 45 E. of Erfurt. Lon. 12. 8 E. Lat. 50. 59 N.

ZELL, a town of Lower Saxony, capital of a duchy of the same name, which devolved to the house of Hanover by marriage. It is surrounded by ditches and ramparts, on which are planted chesnut and lime-trees. It is a small town, without trade or manufactures; but the high courts of appeal for all the territories of the electoral house of Brunswick Lunenburg are held here, and the inhabitants derive their principal means of subsistence from this circumstance. The castle, a stately building, surrounded by a moat, was formerly the residence of the dukes of Zell; and was repaired by George III. king of Great Britain, for the residence of his unfortunate sister, the queen of Denmark, who died here. In 1757 the French reduced the suburbs of Zell to ashes, and even set fire to the orphan hospital, in which a great number of helpless children are said to have perished. Zell is seated on the Aller, 31 miles N.W. of Brunswick, and 47 S. by W. of Lunenburg. Lon. 10. 12 E. Lat. 52. 49 N.

Zell, an imperial town of Suabia, seated on the Kintzig, 28 miles S. of Baden, and 52 W.S.W. of Stutgard. Lon. 8. 8 E. Lat. 48. 22 N.

ZEMBLA (Nova), a very large island lying in the Northern ocean, to the north of Russia, from which it is separated by the strait of Waigate. It has no inhabitants except wild beasts, particularly white foxes and bears. In 1595 a Dutch vessel was cast away on the coast, and the ship's company were obliged to winter here; but they did not see the sun from the fourth of November to the beginning of February, and had great difficulty to keep themselves from being frozen to death.

ZEMINDAR. See Hindustan.

ZEND, or Zendavesta, a book ascribed to Zoroaster, and containing his pretended revelations; which the ancient Magicians and modern Persees, called also Gaurs, observe and reverence in the same manner as the Christians do the Bible, and the Mahometans the Koran, making it the sole rule both of their faith and manners. The word, it is said, originally signifies any instrument for kindling fire, and is applied to this book to denote its aptitude for kindling the flame of religion in the hearts of those who read it.

The Zend contains a reformed system of Magianism; teaching that there is a Supreme Being, eternal, self-existent, and independent, who created both light and darkness, out of which he made all other things; that these are in a state of conflict, which will continue till the end of the world; that then there shall be a general resurrection and judgment; and that just retributions shall be rendered unto men according to their works; that the angel of darkness with his followers shall be consigned to a place of everlasting darkness and punishment, and the angel of light with his disciples introduced into a state of everlasting light and happiness; after which light and darkness shall no more interfere with each other. The Zend also enjoins the constant maintenance of sacred fires, and fire-temples, for religious worship; the distinction of clean and unclean beasts; the payment of tithes to priests, which are to be of one family or tribe; a multitude of washings and purifications, resembling those of the Jewish law; and a variety of rules and exhortations for the exercise of benevolence and charity. In this book there are many passages evidently taken out of the Scriptures of the Old Testament, particularly out of the Psalms of David. Moreover, Dr. Baumgarten asserts, that this work contains doctrines, opinions, and facts, actually borrowed from the Jews, Christians, and Mahometans; whence, and from other circumstances, he concludes that both the history and writings of this prophet were probably invented in the later ages, when the fire-worshippers under the Mahometan government thought fit to vindicate their religion from the suspicion of idolatry.

At whatever period the Zend may have been written, we are assured by Dr. Hyde that it is, in the pure old Persian language, and in the character, called Pelavi. Some parts of it contain the original text, and others Zoroaster's second thoughts subjoined, for explaining more fully his doctrine. These were occasioned by the opposition of adversaries, and unforeseen circumstances, which occurred during the fabrication of the imposture. About 350 years ago, when the old Persian language had become antiquated and little understood, one of the destours, or high-priests among the Persees, composed the Sadda, which is a compendium, in the vulgar or modern Persic tongue, of those parts of the Zend that relate to religion, or a kind of code of canons and precepts, drawn from the theological writings of Zoroaster, serving as an authoritative rule of faith and practice for his followers. This Sadda is written in a low kind of Persic verse, and, as Dr. Hyde informs us, it is *bonorum et malorum farrago*, having many good and pious things, and others very superstitious and trifling. See Persees and Zoroaster.

ZENITH (Arabic), in astronomy, the vertical point, or a point in the heavens directly over our heads. The zenith is called the pole of the horizon, because it is ninety degrees distant from every point of that circle.

Zenith distance, is the complement of the altitude of the sun, star, or other object.

ZENO (Eleates), an eminent Grecian philosopher, was born at Elea about 504 years before Christ. He was a zealous friend of civil liberty, and is celebrated for his courageous and successful opposition to tyrants; but the inconsistency of the stories related by different writers concerning him in a great measure destroys their credit. He chose to reside in his small native city of Elea rather than at Athens, because it afforded freer scope to his independent and generous spirit, which could not easily submit to the restraints of authority. It is related, that he vindicated the warmth with which he resented reproach, by saying, "If I were indifferent to censure, I should also be indifferent to praise." The invention of the dialectic art has been improperly ascribed to Zeno; but there can be no doubt that this philosopher, and other metaphysical disputants in the Eleatic sect, employed much ingenuity and subtlety in exhibiting examples of most of the logical arts, which were afterwards reduced to rule by Aristotle and others. If Seneca's account of this philosopher deserves credit, he reached the highest point of scepticism, and denied the real existence of external objects.

Zeno, another Greek philosopher of considerable eminence, was born at Citium in the isle of Cyprus. He was founder of the Stoics, a sect which had its name from that of a portico at Athens, where Zeno was accustomed to deliver his discourses. The father of our philosopher was a merchant, but readily seconded his son's inclinations, and devoted him to the pursuits of literature. In the way of business he had frequent occasion to visit Athens, where he purchased for his son several of the most renowned works of the celebrated Socratic philosophers. These Zeno read with avidity, and determined to visit the city where so much wisdom was found. Upon his first arrival in Athens, going accidentally into the shop of a bookseller, he took up the commentaries of Xenophon, with the perusal of which he was so much delighted, that he asked the bookseller where he might meet with such men. Crates, the cynic philosopher, was at that moment passing by; the bookseller pointed to him, and said, follow that man. He immediately became his disciple, but was soon dissatisfied with his doctrine, and joined himself to other philosophers, whose instructions were more accordant to his way of thinking. Zeno staid long with no master; he studied under all the most celebrated teachers, with a view of collecting materials from various quarters for a new system of his own. To this Polemo alluded when he saw Zeno coming into his school; "I am no stranger," said he, "to your Phenician arts, I perceive that your design is to creep slily into my garden, and steal away the fruit." From this period Zeno avowed his intention of becoming the founder of a new sect. The place which he chose for his school was the painted porch, the most famous in Athens. Zeno excelled in that kind of subtle reasoning which was in his time very popular. Hence his followers were very numerous, and from the highest ranks in society. Among these was Antigonus Gonates, king of Macedon, who earnestly solicited him to go to his court. He possessed so large a share of esteem among the Athenians, that on account of his integrity, they deposited the keys of their citadel in his hands; they also honoured him with a golden crown and a statue of brass. He lived to the age of 98, and at last, in consequence of an accident, voluntarily put an end to his life.

ZEOLITE. See **Zeolithus**.

ZEOLITHUS, in mineralogy, a genus of the class earths, order argillaceous. Consisting of a little alumina and a large proportion of silex, with frequently a little carbonat of lime, and a small quantity of oxyd of iron and water; lightish, generally breaking into indeterminate fragments, parasitical, falling spontaneously into granular fragments; soluble in nitric acid without effervescence, and often forming with it a gelatinous mass, easily frothing before the blowpipe and emitting a phosphorescent light, and melting into a white semitransparent enamel. Twenty-one species: the following are the chief.

1. Z. lamellosus. Lamellar zeolite. Stilbite. Solid, shining internally, white, with often a shade of red, diaphonous, lamellar, with the foliations undulate and brittle. Found in Ostrogoth and Iceland, sometimes breaking into crustose fragments, and is rather hard.

2. Z. fibrosus. Common zeolite. Mesotype. Solid, shining like mother of pearl, fibrous, with the fibres convergent. Found in Scotland and various other parts of Europe, in basalts, and in the lavas of Iceland, often accompanied with chalcedony, rarely in Hercynia: colour white, reddish, brownish, yellow, or cinereous; lustre silky or pearly; refracts double, and absorbs water; when heated becomes electric: specific gravity 2·0833; contains silex 53·00; alumina 57·00; lime 9·46; water 10·00. (*Vauquelin.*)

3. Z. prismaticus. White, pellucid, shining, hardish, in four-sided prisms, the prisms rectangular or oblique-angled. Found in the Feroe Islands, Iceland, Hercynia, and Jemtia; the prisms commonly very small.

4. Z. viridis. Phrenite. Phrenit. Apple-green, hard, semi-pellucid, of a partly foliated, partly radiated texture; of a common form, or in that of a four-sided compressed prism. Found in Scotland, at the Cape of Good Hope, and in Dauphiny, sometimes so hard as to strike fire with steel, and to admit a fine polish; crystals in groups and confused; when amorphous, presenting a foliated or striated texture: specific gravity 2·6097 to 2·6996; contains silex 43·83; alumina 30·33; lime 18·33; oxyd of iron 5·66; air and water 1·16. (*Klaproth.*)

5. Z. cyanites. Cyanite. Sappure or sappare. Disthine. Very brittle, transparent; shining, ponderous, hardish, striking fire with steel, breaking transversely into long splinters, texture foliated in a radiate manner. Found in Scotland, on the Carpathian mountains, on St. Gothard's near Lyons, in Siberia, Transylvania, and at Zitterthal, in Tyrol, generally in granite and gneiss rocks: colour white, with shades of sky or Prussian-blue, sometimes blueish-grey or yellowish-grey streaked with azure or deep-blue, often in spots reflecting a silvery white: found in distinct lamellar concretions,

which are in part accumulated in grains, and feels somewhat greasy; the primitive form of its crystals a four-sided oblique prism, but sometimes crystallized in six-sided prisms: specific gravity from 3·517 to 3·622: contains alumina 66·92; magnesia 13·25; silex 12·81; iron 5·48; lime 1·71. (*Saussure.*)

There is another species of this genus, or which is at present allowed to rank as a species, which has lately been discovered, and which from its containing a considerable quantity of soda, or natron, without any proportion of lime, has been denominated natrolite. There is, however, some degree of doubt among the chemists whether this arrangement be correct.

"Zeolite (the Z. mesotype of Haüy) and natrolite," observes Mr. Smithson, Phil. Trans. 1811, "have been universally acknowledged to be species distinct from each other, from Mr. Klaproth having discovered a considerable quantity of soda and no lime in the composition of the latter, while Mr. Vauquelin had not found any portion of either of the fixed alkalies, but a considerable one of lime, in his analysis of zeolite.

"The natrolite has been lately met with under a regular crystalline form, and this form appears to be perfectly similar to that of zeolite; but Mr. Haüy has not judged himself warranted by this circumstance to consider these two bodies as of the same species; because zeolite, he says, 'does not contain an atom of soda.'

"I had many years ago found soda in what I considered to be zeolites, which I had collected in the island of Staffa, having formed Glauber's salt by treating them with sulphuric acid; and I have since repeatedly ascertained the presence of the same principle in similar stones from various other places; and Dr. Hutton and Dr. Kennedy had likewise detected soda in bodies, to which they gave the name of zeolite.

"There was, however, no certainty that the subjects of any of these experiments were of the same nature as what Mr. Vauquelin had examined, or were of that species which Mr. Haüy calls mesotype.

"Mr. Haüy was so obliging as to send me lately some specimens of minerals. There happened to be amongst them a cluster of zeolite in rectangular tetrahedral prisms, terminated by obtuse tetrahedral pyramids whose faces coincided with those of the prism. These crystals were of a considerable size, and perfectly homogeneous, and labelled by himself '*Mesotype pyramidée du depart. du Puy de Dôme.*' I availed myself of this very favourable opportunity, to ascertain whether the mesotype of Mr. Haüy and natrolite did or did not differ in their composition, and the results of the experiments have been entirely unfavourable to their separation, as the following account of them will show.

"Ten grains of this zeolite being kept red hot for five minutes lost 0·75 grains, and became opake and friable. In a second experiment, ten grains being exposed for ten minutes to a stronger fire, lost 0·95 grains, and consolidated into a hard transparent state.

"Ten grains of this zeolite, which had not been heated, were reduced to a fine powder, and diluted muriatic acid poured upon it. On standing some hours, without any application of heat, the zeolite entirely dissolved, and some hours after, the solution became a jelly: this jelly was evaporated to a dry state, and then made red hot.

"Water was repeatedly poured on to this ignited matter till nothing more could be extracted from it. This solution was gently evaporated to a dry state, and this residuum made slightly red hot. It then weighed 3·15 grains. It was muriat of soda.

"The solution of this muriat of soda being tried with solutions of carbonat of ammonia and oxalic acid, did not afford the least precipitate, which would have happened had the zeolite contained any lime, as the muriat of lime would not have been decomposed by the ignition.

"The remaining matter, from which this muriat of soda had been extracted, was repeatedly digested with marine acid, till all that was soluble was dissolved. What remained was silica, and, after being made red hot, weighed 4·9 grains.

"The muriatic solution, which had been decanted off from the silica, was exhaled to a dry state, and the matter left made red hot. It was alumina.

"To discover whether any magnesia was contained amongst this alumina, it was dissolved in sulphuric acid, the solution evaporated to a dry state, and ignited. Water did extract some saline matter from this ignited alumina, but it had not at all the appearance of sulphat of magnesia, and proved to be some sulphat of alumina which had escaped decomposition; for on an addition of sulphat of ammonia to it, it produced crystals of compound sulphat of alumina and ammonia, in regular octahedrons.

"This alum and alumina were again mixed and digested in ammonia, and the whole dried and made red hot. The alumina left weighed 3·1 grains.

"Being suspected to contain still some sulphuric acid, this alumina was dissolved in nitric acid, and an excess of acetat of barytes added. A precipitate of sulphat of barytes fell, which, after being edulcorated and made red hot, weighed 1·2 grains. If we admit one-third of sulphat of barytes to be sulphuric acid, the quantity of the alumina will be = 3·1 − 0·4 = 2·7 grains.

"From the experiments of Dr. Marcet, it appears that 3·15 grains of muriat of soda afford 1·7 grains of soda.

"Hence, according to the foregoing experiments, the ten grains of zeolite analysed consisted of

Silica	4·90
Alumina	2·70
Soda	1·70
Ice	0·95
	10·25

"As these experiments had been undertaken more for the purpose of ascertaining the nature of the component parts of this zeolite than their proportions, the object of them was considered as accomplished, although perfect accuracy in the latter respect had not been attained, and which, indeed, the analysis we possess of natrolite by the illustrious chemist of Berlin renders unnecessary.

"I am induced to prefer the name of zeolite for this species of stone to any other name, from an unwillingness to obliterate entirely from the nomenclature of mineralogy, while arbitrary names are retained in it, all trace of one of the discoveries of the greatest mineralogist who has yet appeared, and which, at the time it was made, was considered as, and was, a very considerable one, being the first addition of an earthy species, made by scientific means, to those established immemorially by miners and lapidaries, and hence having, with tungstein and nickel, led the way to the great and brilliant extension which mineralogy has since received. And of the several substances which, from the state of science in his time, certain common qualities induced baron Cronstedt to associate together under the name of zeolite, it is this which has been most immediately understood as such, and whose qualities have been assumed as the characteristic ones of the species.

"Indeed, I think that the name imposed on a substance by the discoverer of it ought to be held in some degree sacred, and not altered without the most urgent necessity for doing it. It is but a feeble and just retribution of respect for the service which he has rendered to science.

"Professor Struve, of Lausanne, whose skill in mineralogy is well known, having mentioned to me, in one of his letters, that from some experiments of his own he was led to suspect the existence of phosphoric acid in several stones, and particularly in the zeolite of Auvergne, I have directed my inquiries to this point, but have not found the phosphoric, or any other acknowledged mineral acid, in this zeolite.

"Many persons from experiencing much difficulty in comprehending the conjoint union of the earths, have been led to suppose the existence of undiscovered acids in stony crystals. If quartz be itself considered as an acid, to which order of bodies its qualities much more nearly assimilate it than to the earths, their composition becomes readily intelligible. They will then be neutral salts, silicates either simple or compound. Zeolite will be a compound salt, a hydrated silicate of alumina and soda, and hence a compound of alumina not very dissimilar to alum. And topaz, whose singular ingredients, discovered by Mr. Klaproth, have called forth a query from the celebrated Mr. Vauquelin, with regard to the mode of their existence together, will be likewise a compound salt, consisting of silicat of alumina and fluat of alumina.

"Our acquaintance with the composition of the several mineral substances is yet far too inaccurate to render it possible to point out with any degree of certainty the one of which zeolite is an hydrat; however, the agreement of the two substances in the nature of their constituent parts, and in their being both electrical by heat, directs conjecture towards tourmaline."

ZEPHANIAH, a canonical book of the Old Testament, containing the predictions of Zephaniah, the son of Cushi, and grandson of Gedaliah; being the ninth of the twelve lesser prophets. He prophesied in the time of king Josiah, a little after the captivity of the ten tribes, and before that of Judah; so that he was contemporary with Jeremiah. He prophesies chiefly against Judah, who continued very corrupt, notwithstanding the king's pious zeal for reformation, and the good example he gave to his subjects. But, while he denounces judgments against the wicked, he exhorts all the good and faithful to patience; and comforts them with the promise of God's restoring and enlarging the church in the time of the Messiah; declaring also how he would sanctify, bless, and glorify them, by exterminating all their enemies.

ZEPHYRI-FŒTUS, a term used by Hartman, and some other writers, to express a mole, or false conception.

ZEPHYRUS, or ZEPHYR, (Ζεφυρος) the west wind; a wind blowing from that cardinal point of the horizon opposite to the east.

The poets personify it, and represent Zephyrus as the mildest and most gentle of all the deities of the woods: the character of his personage is youth and gentleness. It is also called Favonius, and occidens; and, by many, has been confounded with the Africus.

ZERDA. See CANIS.

ZERUMBET. See AMOMUM.

ZEST, the woody, thick skin, quartering the kernel of a walnut. Some physicians prescribe this zest, dried, and taken with white wine, as a remedy against the gravel.

The word is also used for a chip of orange or lemon-peel, such as is usually squeezed into ale, wine, &c. to give it a flavour; or for the fine thin oil that spurts out of that peel on squeezing it. Hence, to zest an orange or lemon, among confectioners, is to cut the peel from top to bottom into small slips, as thin as possible; or, to zest, is to squeeze the peel over the surface of any thing.

ZEST denotes likewise a relish, a taste added.

To ZEST. *v. a.* To heighten by an additional relish.

ZETA, or ZETECULA, a little closet, or withdrawing chamber, with pipes running along the walls to receive from below either the cool air, or the steam of warm water.

The word is formed either from *ζηειν*, to be warm; or of *ζην*, *vivere*, to live, on account of the use made hereof for love and enjoyment.

ZETETÆ, (*Ζητηται*) among the Athenians, were officers appointed upon extraordinary occasions to enquire after the public debts, when, through the neglect of the receivers, or by other means, they were run up to large sums, and began to be in danger to be lost, if not called in.

ZETETICE, (Ζητητικη, formed from ζητεω, I seek,) or ZETETIC METHOD, in mathematics, the method made use of to investigate, or find the solution of a problem.

The ancient Pyrrhonians were sometimes called Zetetici, q. d. seekers.

ZEUGMA, (Ζευγμα, literally denoting a joining together; from ζευγνυω, I join) a figure in grammar, whereby an adjective, or verb, which agrees with a nearer word, is also, by way of supplement, referred to another more remote.

Thus Terence, *Utinam aut hic surdus, aut hæc muta facta sit*. So Virgil, *Hic illius arma, hic currus fuit*. In which cases, the words *facta sit* agreeing primarily with *hæc muta*, are also made to agree or extend to *hic surdus*: and the verb *fuit* is not only referred to *hic currus*, which it properly respects, but farther to *hic illius arma*.

Of this species of ellipsis, which differs from the ellipsis properly so called, in that the word which is to be understood once or oftener has been already mentioned, Messieurs De Port Royal enumerate three sorts, viz. when we repeat the noun or verb in the same manner it has been already expressed; or, when the word expressed cannot be repeated without receiving some alteration, in gender, case, number, or person; or when, after a word which includes the whole, a distribution of the parts is made without repeating the verb. Latin Grammar, vol. ii. p. 183.

The Latins, it may be here observed, take a liberty in constructions, which some of the nicer critics among the moderns, particularly the French, will not allow in the modern tongues.

ZEUS. Dorée. In zoology, a genus of the class pisces, order thoracica. Head compressed, sloping down; upper lip arched by a transverse membrane; tongue subulate; gill-membrane with seven perpendicular rays, the lower transverse; body compressed, thin, shining; rays of the first dorsal fin (mostly) filamentous. Eight species, scattered through the seas of the globe; two common to those of our own coasts. The following are the chief.

1. Z. faber. Common John Dorée. Tail rounded; sides with an oval brown ocellate spot in the middle; anal fins two.

This species is in all parts of an equal thickness; the body is extremely deep, and strongly compressed laterally; so that in shape it resembles the flounder; but swims erect, and not on the side. The head is flat laterally; the mouth immoderately large, being, together with the head, bigger than the body. The eyes correspond in size with the head; the pupil large and protuberant, and the irids yellow. It is sufficiently distinguished from every other fish by the round black spot on each side, of about the size of a sixpence; a circumstance from which superstition has made the dorée a rival to the haddock, for the honour of St. Peter's touch, when he took the tribute-money from its mouth, by leaving on its sides those incontestable proofs of the identity of the fish, the marks of that apostle's finger and thumb. It is a foot and a half long.

The hideous aspect of this fish long banished it from our table, till the celebrated comedian and epicure Quin introduced it. It required only his assertion to make it a delicious fish, and effectually to establish its reputation among the most delicate viands of the times. It is found on our own shores, is very common in the Mediterranean, the Bay of Biscay, and on the French coast; so when Ovid terms it rare, it must have been owing to its delicacy, rather than its scarcity.

2. Z. luna. Opah. King-fish. Tail somewhat lunate; body beautifully red, green, or purple, with oval white spots.

This fish belongs to the genus of dorées, although it far surpasses them in magnitude, weighing in some instances an hundred and forty pounds; measuring three or four feet in length, by two and a quarter in depth. It is so much compressed laterally, that its greatest thickness is only four inches. The colour of the opah is a vivid transparent varnish of scarlet, burnished over with gold, and bespangled with oblong silver spots of different sizes. The breast consists of a hard bone, resembling in shape the keel of a ship; and the flesh has the taste and appearance of beef.

The opah has only been four or five times caught on the British shores; and as no mention is made of it by Linnéus or Willoughby, is probably every where a rare fish. The fins, as well as the body, are of fine scarlet; and from the high encomiums lavished by those who have seen it, in its most brilliant colours, we are led to suppose it the richest and most splendid of all the European fishes.

3. Z. insidiator. Mouth narrow; head small; iris silvery-yellow; jaws with small sharp teeth; sides silvery, spotted with black; back brown, spotted with black, the edge with a double row of recurved prickles, and a hollow to receive the dorsal fin. Inhabits the fresh waters of India; swims near the surface of the water, and feeds on aquatic insects, which it catches by sucking water into its gills and casting it forcibly through its mouth, by which means their wings are wetted, and they become incapable of flying: skin thin, silvery, without scales.

4. Z. gallus. Tenth ray of the dorsal fin, and second of the anal, longer than the body. Inhabits the American and Indian seas; six inches long; body very thin, without scales, greenish silvery; feeds on worms and marine insects; flesh very good.

ZEUXIPPE, a daughter of Laomedon. She married Sicyon, who, after his father-in-law's death, became king of that city of Peloponnesus which from him has been called Sicyon.

ZEUXIS, a celebrated painter, born at Heraclea. He flourished about 468 years

B. C. contemporary with Parrhasius. In the art of painting he not only surpassed all his contemporaries, but also his master Apollodorus. His most celebrated paintings were his Jupiter sitting on a throne, surrounded by the gods; his Hercules strangling the serpents in the presence of his affrighted parents; his modest Penelope; and his Helen, which was placed in the temple of Juno Lucina, at Agrigentum. This last piece he had painted at the request of the Agrigentines, and executed it with wonderful success. For his contest with Parrhasius, see PARRHASIUS.

ZEYLANITE, in mineralogy, a species of schorl. See SCORLUS.

ZIA, an island of the Archipelago, to the S. of Negropont, 15 miles long and eight broad. It belongs to the Turks, but most of the inhabitants are Greeks, and have a bishop. It abounds in barley, wine, and silk; also a fine sort of oak, whose fruit, called villam, is the best trading commodity of the island, it being used by dyers and tanners. The principal town, of the same name, is seated on an eminence, and has a good harbour, with about 2500 houses, all flat at the top. Lon. 34. 24 E. Lat. 37. 48 N.

ZIBETHUM. (from *zobeth*, Arab.) Civetta. Civet. A soft, unctuous, odoriferous substance about the consistence of honey or butter, of a whitish, yellowish, or brownish colour, and sometimes blackish, contained in some excretory follicles near the anus of the viverra zibetha of Linnéus. It has a grateful smell when diluted, and an unctuous subacrid taste, and possesses stimulating, nervine, and antispasmodic virtues.

The civet cat is squeezed out every other day in summer, and in winter twice a week. The quantity procured at each time is from two scruples to rather more than a dram. Thus collected it is much purer than that which the animal sheds against shrubs or stones, by its own exertions. Several of these animals have been brought to Holland, and have afforded a considerable branch of commerce, particularly at Amsterdam. See MUSTELA and VIVERRA.

ZIEGENHAYN, a fortified town of Germany, in Lower Hesse, with a fine castle belonging to the prince of Hesse-Cassel, and an arsenal. The suburb, called Weinhausen, is a handsome place, and more extensive than the town. In 1757 it was taken by the French; and in 1761 it was ineffectually besieged by the allies, who reduced two-thirds of the town to ashes by their cannonade. It stands in a morass, surrounded by the river Schwalm, 28 miles S.S.E. of Cassel.

ZIERIA, in botany, a genus of the class and order tetandria, monogynia. Calyx villous, four-toothed; corol four-petalled; the petals ovate-acute, somewhat revolute, exceeding the calyx; stamens four, hypogenous, with a globular gland on the inside of the base of each; germs four, united internally; style erect; stigma four-lobed.

Four species; of which the most elegant is ziberia Smithii; a low shrub, tolerably hardy in the green-house, with a white flower. Propagable by cuttings. See BOTANY, Pl. CXCI.

ZIGETH, a strong town of Hungary, which has been several times besieged and taken by the Turks and Austrians. It stands on the Alma, by which it is surrounded, 48 miles S.E. of Canischa. Lon. 18. 16 E. Lat. 46. 8 N.

ZIGZAG, a word sometimes used for flexuous.

ZIMMERMAN (John George), born at Brug, in the canton of Berne, in 1728. His father was a senator, and his mother a French woman; from which circumstances he spoke and wrote the two languages with equal facility. Tissot, his biographer, praises his amiable disposition as much as he commends the language and doctrine contained in his fine dissertation on irritability. Haller was one of his masters; it was upon this good foundation, with further support from the remarks of Clisson, that Zimmerman finished his Dissertatio physiologica de irritabilitate, &c. He read a great deal, not only in physic, but in morality, philosophy, literature, history, travels, and periodical publications. His mind was in consequence stored with facts and images. He formed them into detached pieces, and published them in a journal called the Moniteur: but the work to which he was most attached was his Treatise on Solitude. "I love solitude," says he, "and I find pleasure no where but at home. I write to procure myself amusement:" he adds, "I have learned, like a philosopher of old, to live with myself." He made a journey to Berlin, and had a long conference with the king of Prussia at Potsdam, in 1786. As he had been appointed physician to the king at Hanover, the Hanoverian regency sent him to the Hague in 1788, when George III. was so alarmingly ill, that he might be nearer London in case his presence should be necessary. He had long given himself up to labours which silently destroyed his health. He died in 1795.

ZINC. See ZINCUM.

ZINC SPAR. See ZINCUM.

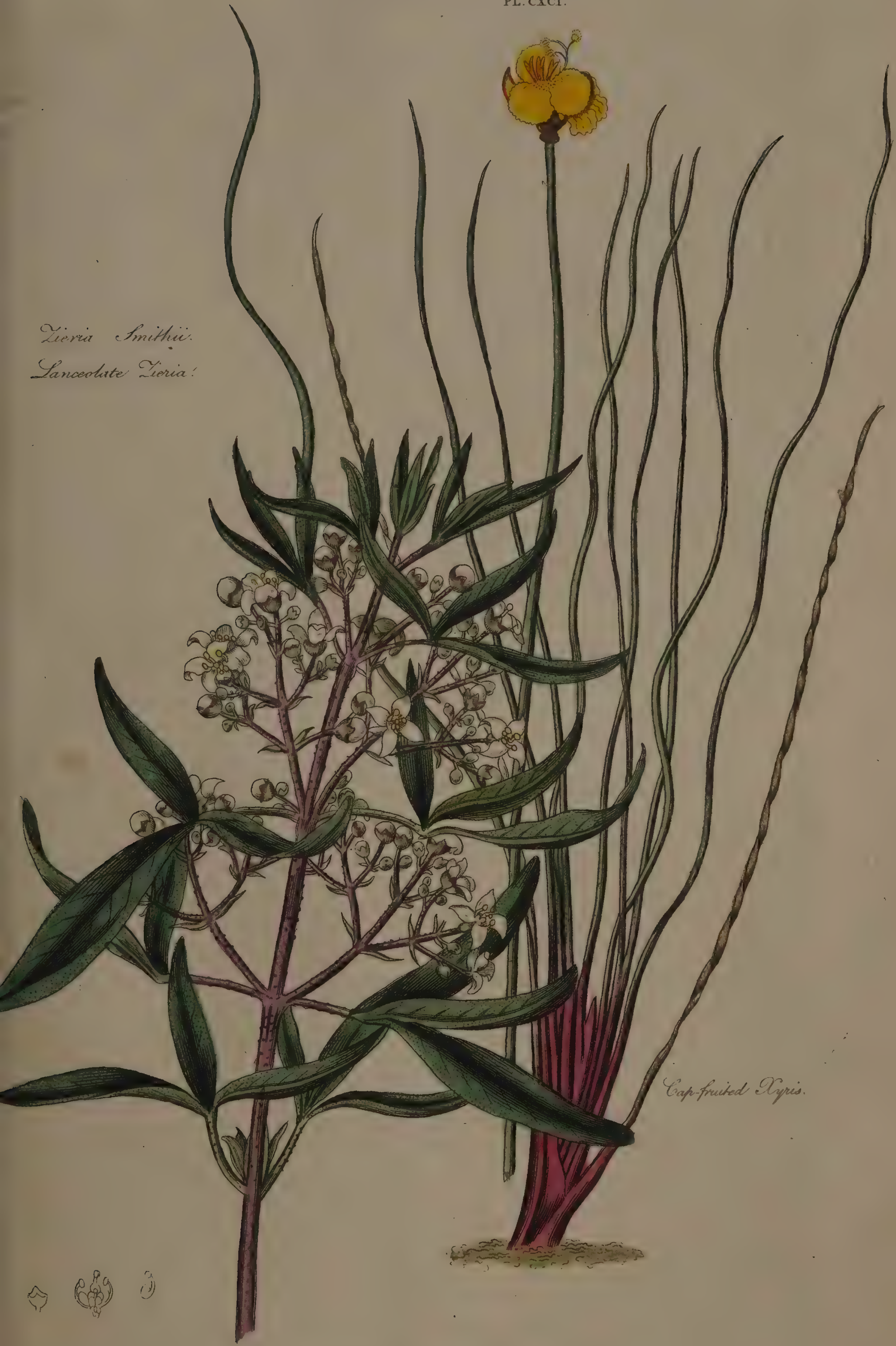
ZINC (Vitriolated). See ZINCUM VITRIOLATUM.

ZINCKE (Christian Frederick), a painter in enamel, born at Dresden about 1684, and came to England in 1706, where he studied under Boil, whom at length he not only surpassed, but excelled Petitot. He painted portraits of many of the royal family, and died in 1767.

ZINCUM. Zinc. In mineralogy, a genus of the class metals. Brilliant white with a shade of blue, hardish, a little malleable, but not ductile, slighly sonorous, of a fibrous or scaly texture; specific gravity 7·120; burning with a brilliant white flame when heated to a strong degree, and emitting light white flakes; when fused with copper giving it a brassy yellow colour; easily soluble in acids, imparting no colour to the solution, but depriving it of its acrimony. Eight species: the following are the chief.

BOTANY.

PL. CXCI.



Zieria Smithii.

Lanceolate Zieria.

Cap-fruited Xyris.

London, Published by Sherwood & C.o Paternoster Row, Oct.r 1.st 1812.

1. **Z. ochraceum.** Loose or friable zinc. Powdery, white, without lustre. Found in China, Sweden, and Carinthia, in a loose and friable form, and sometimes effervesces with acids. In China it is used in the formation of the metal called tutenag.

2. Z. spatosum. Zinc spar. Lamellar, diaphonous, decrepitating somewhat before the blowpipe, but not emitting sulphurous vapours, of a common or globular form. Found in Nottinghamshire, Austria, Carinthia, &c.: colour white, with often a mixture of greenish, reddish, or blackish; it always contains some silex, but not in such abundance as to cause it to strike fire with steel.

3. Z. calaminaris. Oxyd of zinc. Calamine. Lapis calaminaris. Soft, tinged with some colour, of a common form and earthy texture, opake, without lustre, totally soluble in nitric acid. Found in various parts of Great Britain, New Spain, Poland, Silesia, Saxony, Bohemia, Austria, &c. massive, disseminated, or variously imitative; colour greyish, greenish, yellowish, reddish, or brownish; fracture earthy, sometimes splintery, rarely conchoidal: specific gravity 3·434. When the zinc does not exceed a fourth part of the copper it makes brass, and becomes malleable and ductile; when three parts of zinc are combined with four of copper it forms pinchbeck or prince's metal, of a deeper orange colour than brass, and not so malleable.

4. Z. pseudogalena. Black-jack. With a semi-metallic lustre, of a lamellar texture, emitting sulphurous flame and vapour before the blowpipe. Three or four varieties in point of colour, and hence denominated yellow blende, brown blende, black blende. Found in various parts of Great Britain, Siberia, Norway, Sweden, Germany, Hungary, &c. in various shapes and mixtures, with frequently an internal lustre, sometimes emits a phosphorescent light when scraped in the dark: when mixed with lead it forms the metal called tutenag, and combined with tin it is an ingredient in pewter. All the solutions of this metal in acids are precipitated by lime-water, magnesia, fixed alkali, and ammoniac.

If melted zinc be exposed to intense heat, it becomes oxydated, and the oxyd is volatilized by the current of the flame, ascends, and is afterwards condensed into little white flakes called flores zinci, or flowers of zinc, which in medicine are exhibited internally as a powerful antispasmodic. The use of zinc in the arts is very considerable. In medicine the sulphat of zinc, or white vitriol, as it is called, isgiven internally in the dose of from ℈j to ℥ss, as a vomit. In small doses it cures dropsies, intermittent head-achs, and some nervous diseases, and is a powerful antispasmodic and tonic. A solution of white vitriol is also used to remove gleets, gonorrhœas, and for cleaning foul ulcers.

The salt called white vitriol is an impure sulphat of zinc, and has already been noticed under the article Vitriolum. It is prepared largely at Rammelsburg and elsewhere in Germany, by roasting blende and then exposing it to the air. In England, however, it is chiefly obtained by direct solution of metallic zinc in sulphuric acid, and it is hence purer than the foreign, though it still possesses a considerable quantity of iron.

The uses of this metal under different forms are considerable. In its metallic state it is employed by the Chinese for coins, and has been proposed in this country as a substitute-lining for lead and tin, though injudiciously, as it is easily soluble in all acids, and all its salts are violent emetics. In combination with copper it forms brass, and all the useful and ornamental gold alloys.

The ancients were acquainted with a mineral to which they give the name of cadmia, from Cadmus, who first taught the Greeks to use it. They knew that when melted with copper it formed brass; and that when burnt, a white spongy kind of ashes was volatilized, which they used in medicine. This mineral contained a good deal of zinc; and yet there is no proof remaining that the ancients were acquainted with this metal itself. The word zinc first occurs in the writings of Paracelsus, who died in 1541. He informs us very gravely, that it is a metal, and not a metal, and that it consists chiefly of the ashes of copper. This metal has also been called spelter.

Zinc has never been found in Europe in a state of purity, and it was long before a method was discovered of extracting it from its ore. Henkel pointed out one in 1721; Von Swab obtained it by distillation in 1742; and Margraf published a process in the Berlin Memoirs in 1746.

Zinc is of a brilliant white colour, with a shade of blue, and is composed of a number of thin plates adhering together. When this metal is rubbed for some time between the fingers, they acquire a peculiar taste, and emit a very perceptible smell. Its hardness is six and a half. When rubbed upon the fingers it tinges them of a black colour. Its specific gravity, after it has been melted, is 6.861; after it has been compressed 7.1908; so that its density is increased 1-20th.

This metal forms in a manner the limit between the brittle and the malleable metals. Its malleability is by no means to be compared with that of some of the metals; yet it is not brittle, like others. When struck with a hammer, it does not break, but yields and becomes somewhat flatter; and by a cautious and equal pressure, it may be reduced to pretty thin plates, which are supple and elastic, but cannot be folded without breaking. This property of zinc was first ascertained by Mr. Sage. When heated to about 400°, it becomes so brittle, that it may be reduced to powder in a mortar.

Its tenacity has not been ascertained. When heated to the temperature of about 700°, it melts; and if the heat is increased, it evaporates, and may be easily distilled over in close vessels. When allowed to cool slowly, it crystallizes in small bundles of quadrangular prisms, disposed in all directions. If they are exposed to the air while hot, they assume a blue changeable colour.

When exposed to the air, its lustre is soon tarnished, but it scarcely undergoes any other change. When kept under water its surface soon becomes black, the water is slowly decomposed, hydrogen gass is emitted, and the oxygen combines with the metal. If the heat is increased, the decomposition goes on more rapidly; and if the steam of water is made to pass over zinc at a very high temperature, it is decomposed so rapidly, that very violent detonations take place.

When zinc is kept melted in an open vessel, its surface is soon covered with a grey-coloured pellicle, in consequence of its combination with oxygen. When this pellicle is removed, another soon succeeds it; and in this manner may the whole of the zinc be oxydated. When these pellicles are heated and agitated in an open vessel, they soon assume the form of a grey powder, often having a shade of yellow. The powder has been called the grey oxyd of zinc. When zinc is raised to a very strong red heat in an open vessel, it takes fire, and burns with a brilliant white flame, and at the same time emits a vast quantity of very light white flakes. These are merely an oxyd of zinc. This oxyd was well known to the ancients. Dioscorides describes the method of preparing it. The ancients called it pompholyx; the early chemists gave it the name of nibil album, lana philosophica, and flowers of zinc. Dioscorides compares it to wool.

Two different oxyds of zinc are at present known.

The peroxyd, or white oxyd of zinc, is the oxyd usually formed in the different processes to which the metal is subjected. We are indebted to Mr. Proust for an exact analysis of this oxyd and its combinations. It is composed of eighty parts of zinc and twenty of oxygen. It may be formed not only by burning zinc, but also by dissolving it in diluted sulphuric or nitric acid, and precipitating it by potass. This oxyd is used as a paint; but its colour must be perfectly white. When zinc happens to contain a little iron, which is often the case with the zinc of commerce, the oxyd obtained has a tinge of yellow, because it is mixed with a little yellow oxyd of iron.

The protoxyd, or zinc combined with a minimum of oxygen, is obtained by exposing the peroxyd to a strong heat in an earthenware retort or covered crucible. From the experiments of Desormes and Clement, it appears that by this process zinc loses a portion of its oxygen, and assumes a yellow colour. According to the analysis of these chemists, the protoxyd of zinc is composed of eighty-eight parts of zinc and twelve parts of oxygen. The reduction of the oxyds of zinc is an operation of difficulty, in consequence of the strong affinity which exists between zinc and oxygen. It must be mixed with charcoal, and exposed to a strong heat in vessels which screen it from the contact of the external air.

Most of the simple combustibles combine with zinc.

Hydrogen gass dissolves a little of it in certain situations. It is usual to procure hydrogen gass by dissolving zinc in diluted sulphuric acid. The gass thus obtained is as pure as any which can be procured. It carries along with it however a little zinc in solution; but it deposits it again upon the sides of the glass jars, and on the surface of the water over which it stands. This gass, if we believe the French chemists, contains often a little carbureted hydrogen gass; a proof that zinc frequently contains carbon. When this metal is dissolved in sulphuric acid, it deposits a black insoluble powder, which the French chemists found to be carburet of iron. It is uncertain whether it is carburet, or carbon combined with zinc, which gives occasion to the production of the carbureted hydrogen gass.

It is believed at present that sulphur does not combine with zinc in the metallic state; because no attempt to form the combination artificially has succeeded. Sulphur unites with the oxyd of zinc when melted along with it in a crucible. This was first discovered by Dehne in 1781. The experiment was afterwards repeated by Morveau. The sulphureted oxyd of zinc is of a dark-brown colour, and brittle. It exists native in great abundance, and is known by the name of blende. Mr. Proust, however, has announced it as his opinion, that blende is a sulphuret of zinc, or a compound of sulphur and zinc in the metallic state.

Zinc may be combined with phosphorus, by dropping small bits of phosphorus into it while in a state of fusion. Pelletier, to whom we are indebted for the experiment, added also a little resin, to prevent the oxydation of the zinc. Phosphuret of zinc is of a white colour, and metallic splendour, but resembles lead more than zinc. It is somewhat malleable. When hammered or filed, it emits the odour of phosphorus. When exposed to a strong heat, it burns like zinc.

Phosphorus combines also with the oxyd of zinc; a compound which Margraf had obtained during his experiments on phosphorus. When twelve parts of oxyd of zinc, twelve parts of phosphoric glass, and two parts of charcoal-powder, are distilled in an earthen-ware retort, and a strong heat applied, a metallic substance sublimes of a silver-white colour, which when broken has a vitreous appearance. This, according to Pelletier, is phosphureted oxyd of zinc. When heated by the blowpipe, the phosphorus burns, and leaves behind a glass, transparent while in fusion, but opaque after cooling.

Phosphureted oxyd of zinc is obtained also when two parts of zinc and one part of phosphorus are distilled in an earthen retort. The products are, 1. Zinc; 2. Oxyd of zinc; 3. A red sublimate, which is phosphureted oxyd of zinc; 4. Needleform crystals of metallic brilliancy, and a blueish colour. These also Pelletier considers as phosphureted oxyd of zinc.

Zinc does not combine with azote. Muriatic acid readily converts it into an oxyd.

Zinc combines with almost all the metals, and some of its alloys are of great importance.

It may be united to gold in any proportion by fusion. The alloy is the whiter and the more brittle, the greater quantity of zinc it contains. An alloy, consisting of equal parts of these metals, is very hard and white, receives a fine polish, and does not tarnish readily. It has therefore been proposed by Mr. Malouin as very proper for the specula of telescopes. One part of zinc is said to destroy the ductility of 100 parts of gold.

Platinum combines very readily with zinc. The alloy is brittle, pretty hard, very fusible, of a blueish-white colour, and not so clear as that of zinc.

The alloy of silver and zinc is easily produced by fusion. It is brittle, and has not been applied to any use.

Zinc may be combined with mercury, either by triturating the two metals together, or by dropping mercury into melted zinc. This amalgam is solid. It crystallizes when melted, and cooled slowly into lamellated hexagonal figures, with cavities between them. They are composed of one part of zinc and two and a half of mercury. It is used to rub on electrical machines, in order to excite electricity.

Zinc combines readily with copper, and forms one of the most useful of all the metallic alloys. The metals are usually combined together by stratifying plates of copper and a native oxyd of zinc combined with carbonic acid, called calamine, and applying heat. When the zinc does not exceed a fourth part of the copper, the alloy is known by the name of brass. It is of a beautiful yellow colour, more fusible than copper, and not so apt to tarnish. It is malleable, and so ductile that it may be drawn out into wire. Its density is greater than the mean. It ought to be by calculation 7.6296, but it actually is 8.3958; so that its density is increased by about 1-10th. When the alloy contains three parts of zinc and four of copper, it assumes a colour nearly the same with gold, but it is not so malleable as brass. It is then called pinchbeck, prince's metal, or prince Rupert's metal. Brass was known, and very much valued, by the ancients. They used an ore of zinc to form it, which they called cadmia. Dr. Watson has proved that it was to brass that they gave the name of orichalcum. Their æs was copper, or rather bronze.

It is very difficult to form an alloy of iron and zinc. Wallerius has shewn that iron is capable of combining with a small portion of zinc; and Malouin has shewn that zinc may be used instead of tin to cover iron plates, a proof that there is an affinity between the two metals.

Tin and zinc may be easily combined by fusion. The alloy is much harder than zinc, and scarcely less ductile. This alloy is often the principal ingredient in the compound called pewter.

The alloy of lead and zinc has been examined by Wallerius, Gelert, Muschenbroeck, and Gmelin. This last chemist succeeded in forming the alloy by fusion. He put some suet into the mixture, and covered the crucible in order to prevent the evaporation of the zinc. When the zinc exceeded the lead very much, the alloy was malleable, and much harder than lead. A mixture of two parts of zinc and one of lead formed an alloy more ductile and harder than the last. A mixture of equal parts of zinc and lead formed an alloy differing little in ductility and colour from lead; but it was harder and more susceptible of polish, and much more sonorous. When the mixture contained a smaller quantity of zinc, it still approached nearer the ductility and colour of lead; but it continued harder, more sonorous, and susceptible of polish, till the proportions approached to 1 of zinc and 16 of lead, when the alloy differed from the last metal only in being somewhat harder.

ZINCUM CALCINATUM. Flores zinci. Nihilum album. Flowers of zinc. This preparation of zinc is called in the new chemical nomenclature, oxydum zinci sublimatum. It possesses styptic qualities, and is administered as an antispasmodic in spasmodic asthma against ascarides, epilepsy, hysterical spasms, and hooping cough.

ZINCUM VITRIOLATUM. Impure white vitriol.

ZINCUM VITRIOLATUM PURIFICATUM. Oxydum zinci vitriolatum. Vitriolum album. Vitriolum zinci. Sulphas zinci. White vitriol. This preparation of zinc is given internally as a styptic, emetic, adstringent, and tonic, in cases of hæmorrhage, intermittents, and diarrhœas; and is employed externally in the form of lotion, bath, or ointment, in the cure of gleet, ophthalmia, hæmorrhoids, prolapsus, diseases of the skin, and aphthæ.

ZINGI. An ancient name of the stellated aniseed. See ANISUM STELLATUM.

ZINGIBER. (ζιγγιβερις, Indian.) Zingiber album. Zingiber nigrum. Zingiber commune. Ginger. Amomum zingiber of Linnéus. The white and black ginger are both the produce of the same plant, the difference depending upon the mode of preparing them. Ginger is generally considered as an aromatic, and less pungent and heating to the system than might be expected from its effects upon the organ of taste. It is used as an antispasmodic and carminative. The cases in which it is more immediately serviceable are flatulent colics, debility, and laxity of the stomach and intestines; and in torpid and phlegmatic constitutions to excite brisker vascular action. It is seldom given but in combination with other medicines. In the pharmacopœias it is directed in the form of a syrup and condiment; and in many compositions ordered as a subsidiary ingredient.

ZINGIBER ALBUM. The root of the amomum zingiber of Linnéus is so termed when deprived of its radicles and sordes.

ZINGIBER COMMUNE. Common ginger. See ZINGIBER.

ZINGIBER NIGRUM The root of the amomum zingiber of Linnéus is so called when suffered to dry with its radicles and the sordes which usually hang to it.

ZINNIA, in botany, a genus of the class syngenesia, order polygamia superflua. Receptacle chaffy; seed crowned with two erect awns; calyx ovate, cylindrical, imbricate; florets of the ray about five, permanent, entire. Five species, natives of Mexico and Peru. The two following are cultivated.

1. Z. pauciflora. Few-flowered yellow zinnia. An annual. Roots fibrous; stalk three feet high; flowers yellow, terminal.

2. Many-flowered red zinnia. Also an annual. Erect; florets of the disk yellow, of the ray dusky red. They are both best propagated by seeds after the manner of hot-house annuals.

ZINZENDORF (Nicholas Louis, count of), a celebrated nobleman, who united himself to the Herrnhuters, better known by the appellations of Moravians and Unitas Fratrum. He built a house for this sect, and became their bishop. The count came to London, and published some religious pieces and sermons. He died in 1760. The count Dohna succeeded him in the government of the brethren. This society is commendable for its moderation, forbearance under persecution, and zeal in propagating the gospel, without ostentation, and with great success, in heathen countries.

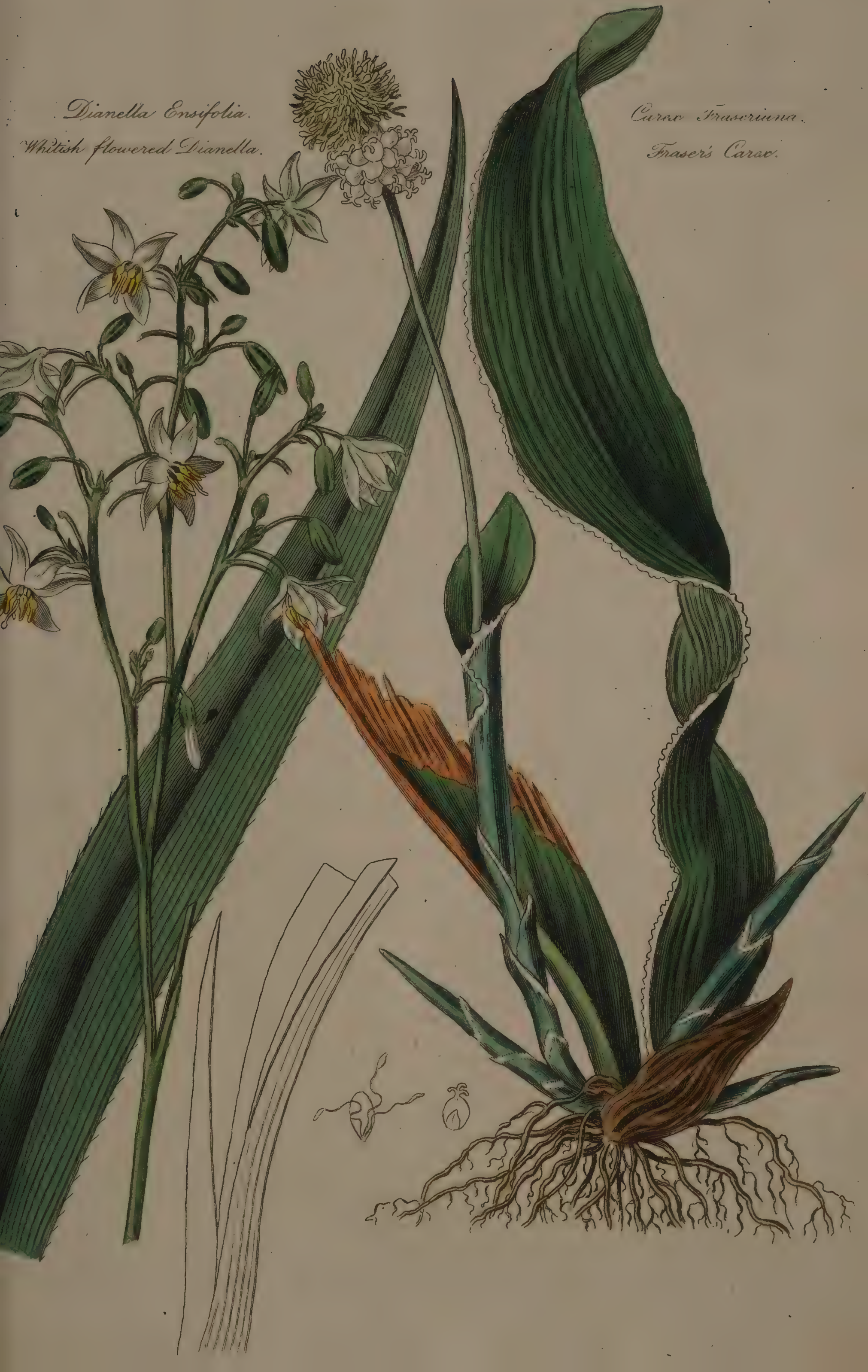
ZION, or SION (anc. geog.), a very famous mountain, standing on the north side of the city of Jerusalem (Psal. xlvii. 2.); containing the upper city, built by king David; and where stood the royal palace (*Josephus*). A part of Zion, situated at its extremity, was called Millo, of, or in, the city of David (2 Chron. xxxii. 5). Modern travellers, who have been upon the spot, say, that Zion is the whole of the mountain on which Jerusalem stands at this day, though not to the extent in which it anciently stood on the same mountain, as appears, Psal. ix. 12, 15. lxv. 1. lxxxvii. 2, 3. Is. lxii. 1. It is swelled into several eminences or tops; as Moriah, Acra Bezetha, Zion, a particular eminence of the mount, and Zion Proper, &c. encompassed on three sides, east, west, and south, with one continued very deep and steep valley; by means of which it was impregnable on these three sides, and always attacked and taken, according to Josephus, by the enemy on the north side, where mount Zion becomes level, and the vales of Gihon and Jehosophat gradually lose themselves. This deep and steep valley incontestably constitutes the compass of the old Jerusalem on those three sides, as plainly appears to any person who has been upon the spot. There is another Zion, the same with Hermon.

ZIRCON, in mineralogy, a name applied to the hyacinth, and to proper jargon. See GEMMA and CIRCONIUS.

ZIRICZEE, a strong town of Holland, in Zealand, and capital of the isle of Schowen. It was the ancient residence of the counts of Zealand, and then a place of much more consequence, the port having been since filled with sand. It is 12 miles N.E. of Middleburg, and 18 S.W. of Briel. Lon. 4. 10 E. Lat. 51. 36 N.

ZIRNITCH, a town of Carniola, in the circle of Austria. Lat. 45. 47 N. lon. 14. 40 E. This town is remarkable for its neighbouring lake, called Zirnitzer sea, which is situated in lat. 45. 46 N. lon. 14. 42 E. and is nearly seven miles long, and three broad. On its south side there is a great forest, on the north the country is flat, but the whole valley is encompassed with high hills, at some little distance from it. This lake is well filled with water for the greatest part of the year, but in the month of June it sinks under ground, not only by percolation, but by retiring through many holes at the bottom. In the month of September it returns by the same, and in a short time covers the tract of earth again. This return and ascent is so speedy, that the water springs or spouts out of the ground to the height of six or eight feet. During the retirement and absence of the water, the ground is very fruitful, not only affording sustenance for the beasts of the field, but yielding plentiful crops of hay, and sometimes corn; so that this spot is noted for the production of grass, corn, fish and game, regularly every year. This lake was anciently known by the name Lugea Palus: a very curious account of it and the surrounding country (with engravings) may be seen in the Phil. Trans. Nos. 109 and 191.

ZISCA (John), a famous general of the forces of the Hussites, in the 15th century, was a gentleman educated at the court of Bohemia, in the reign of Wenceslaus. He entered very young into the army, and after distinguishing himself on several occasions, lost an eye in a battle, whence he was called Zisca, or One-eyed. At length the Reformation, begun by John Huss, spreading through almost all Bohemia, Zisca placed himself at the head of the Hussites, and had soon under his command a body of 40,000 men. With this army he gained several victories over those of the Romish religion, who carried on a kind of crusade against them, and built a town in an advantageous situation, to which he gave the name of Tabor; whence the Hussites were afterwards called Taborites. Zisca lost his other eye by an arrow at the siege of the city of Rubi; but this did not prevent his continuing the war, his fighting battles, and gaining several great victories, among which was that of Ausig on the Elbe, in which 9000 of the enemy were left dead on the field. The emperor Sigismund, alarmed at his progress, caused very advantageous proposals to be offer-



Dianella Ensifolia.
Whitish flowered Dianella.

Carex Fraseriana.
Fraser's Carex.

ed to him; which he readily accepted, and set out to meet Sigismund, but died on the road. He ordered that his body should be left a prey to the birds and wild beasts; and that a drum should be made of his skin, being persuaded that the enemy would fly as soon as they heard the sound. It is added, that the Hussites executed his will; and that the news of this order made such an impression on the disturbed imaginations of the German papists, that in many battles they actually fled at the beat of the drum with the utmost precipitation, leaving their baggage and artillery behind them.

ZITTAU, a fortified town of Lusatia, which has four large and six small gates. It has a very extensive trade in linen, white damasks, woollen cloth, and blue paper. The cathedral has three organs; and near it is a college, where the languages, drawing, and other arts, are taught gratis. Joining to the cloisters is a library, the finest in all Lusatia; and at a small distance from it is an orphan house. Zittau being occupied by the Prussians, in 1757, was taken by the Austrians, who almost entirely destroyed it by the bombs and cannonade. It is seated on the Neisse, 17 miles S.W. of Gorlitz, and 25 S.E. of Dresden. Lon. 15. 1 E. Lat. 50. 54 N.

ZIZANIA, in botany, a genus of the class monœcia, order hexandria. Male: calyxless; corol, glume two-valved, awnless, mixed with the females. Fem.: calyxless; corol, glume one-valved, hooded, awned; styles two; seed one, invested with the plaited corol. Two species; one a native of North America, the other of Malabar.

ZIZIPHORA. Syrian field basil. In botany, a genus of the class diandria, order monogynia. Corol ringent, the upper lip reflected, entire; calyx filiform; seeds four. Two species; one a native of Syria and Armenia, with the flowers all terminal, the corol immaculate; the other of Spain.

ZIZYPHUS. Jujube-tree. Calyx tubular; petals five; scales opposite the stamens; drupe with a one or a two-celled nut. Ten species: eight prickly; two unarmed. Natives of the south of Europe, East Indies, or Carolina. The following are the chief.

1. Z. paliurus. Christ's thorn. Prickles double, the lower ones reflected; flowers three-styled; drupe coriaceous, with a winged margin. Fruit dry, depressed. This is supposed to be the plant from which the crown of thorns was made that was put round our Saviour's head.

2. Z. lotus. Prickles double; one of them recurved: leaves ovate-oblong, obsoletely crenate. A shrub with weak flexuous branches, and axillary flowers, solitary or glomerate. This is the true lotus of the ancients.

3. Z. jujuba. Peduncles solitary, recurved; leaves roundish-ovate, flowers half two-styled.

4. Z. vulgaris. Common jujube. Prickles double, one of them recurved; leaves ovate, retuse, toothed, glabrous. The whole of this genus bears a near approach to the rhamnus, and by the older botanists is included under it.

ZNAIM, a strong town of Moravia, capital of a circle of the same name, with a castle, in which are a great many pagan antiquities. The vicinity yields excellent wine. It is seated on the Teya, 35 miles S.W. of Brinn, and 42 N.N.W. of Vienna. Lon. 16. 0 E. Lat. 48. 48 N.

ZOARA, a fortified town of Barbary, in the country of Tripoli, with a good harbour, on the Mediterranean, 60 miles W. of Tripoli. Lon. 11. 53 E. Lat. 32. 45 N.

ZOBLITZ, a town of Upper Saxony, in Misnia. The inhabitants subsist principally by working the serpent-stone, which is found in the neighbourhood, into pitchers, bowls, tea and coffee-cups, &c. The red species of this stone, which is considered as the finest, belongs solely to the sovereign. It is 17 miles S. of Freyberg.

ZO'CLE. *s.* (In architecture.) A small sort of stand or pedestal, being a low square piece or member, serving to support a busto, statue, or the like, that needs to be raised; also a low square member serving to support a column instead of a pedestal, base, or plinth.

ZODIAC, in astronomy, an imaginary ring or broad circle, in the heavens, in form of a belt or girdle, within which the planets all make their excursions. In the very middle of it runs the ecliptic, or path of the sun in his annual course; and its breadth, comprehending the deviations or latitudes of the earlier known planets, is by some authors accounted 16, some 18, and others 20 degrees.

The zodiac, cutting the equator obliquely, makes with it the same angle as the ecliptic, which is its middle line, which angle, continually varying, is now nearly equal to 23° 28′; which is called the obliquity of the ecliptic, and constantly varies between certain limits which it can never exceed. See Ecliptic and Obliquity.

The zodiac is divided into 12 equal parts, of 30 degrees each, called the signs of the zodiac, being so named from the constellations which anciently passed them. But the stars having a motion from west to east, those constellations do not now correspond to their proper signs; from whence arises what is called the precession of the equinoxes. And therefore when a star is said to be in such a sign of the zodiac, it is not to be understood of that constellation, but only of that dodecatemory or 12th part of it.

Cassini has also observed a tract in the heavens, within whose bounds most of the comets, though not all of them, are observed to keep, and which he therefore calls the zodiac of the comets. This he makes as broad as the other zodiac, and marks it with signs or constellations, like that; as Antinous, Pegasus, Andromeda, Taurus, Orion, the Lesser Dog, Hydra, the Centaur, Scorpion, and Sagittary.

It is a curious fact, that the solar division of the Indian zodiac is the same in substance with that of the Greeks, and yet that it has not been borrowed either from the Greeks or the Arabians. The identity, or at least striking similarity, of the division, is universally known; and M. Montucla has endeavoured to prove, that the Bramins received it from the Arabs. His opinion, we believe, has been very generally admitted; but in the second volume of the Asiatic Researches, the accomplished president sir William Jones has proved unanswerably, that neither of those nations borrowed that division from the other; that it has been known among the Hindus from time immemorial; and that it was probably invented by the first progenitors of that race, whom he considers as the most ancient of mankind, before their dispersion.

The Greek zodiac originally contained only eleven signs: the Scorpion in their zodiac occupying the place of two. See Montucla's History of Mathematics, vol. i. pa. 79.

ZODIACAL LIGHT, a brightness sometimes observed in the zodiac, resembling that of the galaxy or milky way. It appears at certain seasons, viz. towards the end of winter and in spring, after sunset, or before his rising, in autumn and beginning of winter, resembling the form of a pyramid, lying lengthways with its axis along the zodiac, its base being placed obliquely with respect to the horizon. This phænomenon was first described and named by the elder Cassini, in 1683. It was afterwards observed by Fatio, in 1684, 1685, and 1686; also by Kirch and Eimmart, in 1688, 1689, 1691, 1693, and 1694. See Mairan, Suite des Mem. de l'Acad. Royale des Sciences 1731, pa. 3.

The zodiacal light, according to Mairan, is the solar atmosphere, a rare and subtile fluid, either luminous by itself, or made so by the rays of the sun surrounding its globe; but in a greater quantity, and more extensively, about his equator, than any other part.

Mairin says, it may be proved from many observations, that the sun's atmosphere sometimes reaches as far as the earth's orbit, and there meeting with our atmosphere, produces the appearance of an aurora borealis.

The length of the zodiacal light varies sometimes in reality, and sometimes in appearance only, from various causes.

Cassini often mentions the great resemblance between the zodiacal light and the tails of comets. The same observation has been made by Fatio: and Euler endeavoured to prove that they were owing to similar causes. See Decouverte de la Lumiere Celeste que paroit dans le Zodiaque, art. 41. Lettre à M. Cassini, printed at Amsterdam in 1686. Euler, in Mem. de l'Acad. de Berlin, tom. 2.

This light seems to have no other motion than that of the sun itself: and its extent from the sun to its point is seldom less than 50 or 60 degrees in length, and more than 20 degrees in breadth: but it has been known to extend to 100 or 103°, and from 8 to 9° broad.

It is now generally acknowledged, that the electric fluid is the cause of the aurora borealis, ascribed by Mairan to the solar atmosphere, which produces the zodiacal light, and which is thrown off chiefly and to the greatest distance from the equatorial parts of the sun, by means of the rotation on his axis, and extending visibly as far as the orbit of the earth, where it falls into the upper regions of our atmosphere, and is collected chiefly towards the polar parts of the earth, in consequence of the diurnal revolution, where it forms the aurora borealis. And hence it has been suggested, as a probable conjecture, that the sun may be the fountain of the electrical fluid, and that the zodiacal light, and the tails of comets, as well as the aurora borealis, the lightning, and artificial electricity, are its various and not very dissimilar modifications. See Biot, D'Astronomie Physique, art. 254; and Gregory's Translation of Haüy's Philosophy, vol. ii. art. 628.

ZOE, the fourth wife of the emperor Leo VI. and mother of Constantine Porphyrogenetus, in whose minority she governed the empire with great firmness and discretion; quelling the revolt of Constantine Ducas, obliging the Bulgarians to return to their own country, and making a peace with the Saracens. Her ungrateful son, on coming of age, sent his mother into exile, where she died. She is not to be confounded with Zoe, the second wife of the same emperor Leo VI. who was afterwards crowned empress, and died in 895. There was another of the same name, who was daughter of Constantine VIII. and married Argyrus, whom she murdered, and took to her throne and bed Michael the Paphlagonian. She died in 1050.

ZOEGEA, in botany, a genus of the class syngenesia, order frustranea. Receptacle bristly; down bristle-like; florets of the ray ligulate; calyx imbricate. One species, a native of the East.

ZOILUS, a Thracian rhetorician, who flourished in the time of Ptolemy Philadelphus, about 260 years B. C. He is remembered by his captious criticisms on Homer, Plato, and Socrates. Hence he was called Homeromastix, and after him every snarling critic is called a Zoilus.

ZOLNOCK, a town of Hungary, capital of a county of the same name. It was taken by the Turks in 1554, and retaken in 1685. It is seated on the Teysse, at the influx of the Sagelia, 62 miles N.E. of Colocza, and 62 E. of Buda. Lon. 20. 50 E. Lat. 47. 10 N.

ZONE, in geography and astronomy, a division of the earth's surface, by means of parallel circles, chiefly with respect to the degree of heat in the different parts of that surface.

The ancient astronomers used the term zone, to explain the different appearances of the sun and other heavenly bodies, with the length of the days and nights; and the geographers, as they used the climates, to mark the situation of places; using the term climate when they were able to be more exact, and the term zone when less so.

The zones were commonly accounted five in number; one a broad belt round the middle of the earth, having the equator in the very middle of it, and bounded, towards the north and south, by parallel circles passing through the tropics of Cancer and Capricorn. This they called the torrid zone, which they supposed not habitable, on account of its extreme heat. Though sometimes they divided this into two equal torrid zones, by the equator, one to the north, and the other south; and then the whole number of zones was accounted 6.

Next, from the tropics of Cancer and Capricorn, to the two polar circles, were two other spaces called temporate zones, as being moderately warm; and these they supposed to be the only habitable parts of the earth.

Lastly, the two spaces beyond the temperate zones, about either pole, bounded within the polar circles, and having the poles in the middle of them, are the two frigid or frozen zones, and which they supposed not habitable, on account of the extreme cold there.

Hence, the breadth of the torrid zone is equal to twice the greatest declination of the sun, or obliquity of the ecliptic, equal to 46°56′, or twice 23° 28′. Each frigid zone is also of the same breadth, the distance from the pole to the polar circle being equal to the same obliquity 23° 28′. And the breadth of each temperate zone is equal to 43° 4′, the complement of twice the same obliquity.

The difference of zones is attended with a great diversity of phenomena. 1. In the torrid zone, the sun passes through the zenith of every place in it twice a year; making as it were two summers in the year; and the inhabitants of this zone are called amphiscians, because they have their noon-day shadows projected different ways in different times of the year, northward at one season, and southward at the other.

2. In the temperate and frigid zones, the sun rises and sets every natural day of 24 hours. Yet every where, but under the equator, the artificial days are of unequal lengths, and the inequality is the greater, as the place is farther from the equator. The inhabitants of the temperate zones are called heteroscians, because their noon-day shadow is cast the same way all the year round, viz. those in the north zone toward the north pole, and those in the south zone toward the south pole.

3. Within the frigid zones, the inhabitants have their artificial days and nights extended out to a great length; the sun sometimes skirting round a little above the horizon for many days together; and at another season never rising above the horizon at all, but making continual night for a considerable space of time. The inhabitants of these zones are called periscians, because sometimes they have their shadows going quite round them in the space of 24 hours.

ZONITIS, in zoology, a genus of the class insecta, order coleoptera. Antennas testaceous; feelers four, filiform; jaw entire, longer than the feelers; lip emarginate. Nine species, scattered over the warmer climates of the globe; some of them resembling the cantharis.

ZOO′GRAPHER. *s.* (ζωη and γραφω.) One who describes the nature, properties, and forms of animals (*Brown*).

ZOO′GRAPHY. *s.* (of ζωη and γραφω.) A description of the forms, natures, and properties of animals (*Glanville*).

ZOOLITHUS, in mineralogy, a genus of the class petrifactions; consisting of the body of some mammalian animal, below the rank of man, or of some of its parts, changed into a fossile substance. The species are numerous: the following are the chief:

1. Z. turcosa. Turquoise. The teeth. Hardish, of a blueish-green colour. Found in the copper-mines of Cumberland, in Persia, Siberia, Bohemia, France, Germany, &c. and are held in great estimation by the inhabitants of the East: the colour, after long exposure to the air, becomes a dirty yellow-brown or blackish, opaque, hard, adhering a little to the tongue, and admitting some degree of polish and lustre: the colour seems to be acquired by the oxyds of iron and copper. See TURQUOISE.

2. Z. osteolithus. The bones becoming a calcareous substance. Found in Great Britain, and some parts of the continent, converted into common limestone.

3. Z. simiæ. The entire skeleton of the ape. Found, in 1723, at Henneburg, near Glucksbrun, imbedded in bituminous marl impregnated with copper.

4. Z. elephantis. The tusks, grinders, or bones of the elephant. Found in various bogs of England and Ireland.

5. Z. megatherii. The whole, or nearly the whole, skeleton of the mammoth. Found in North America. See the article MEGATHERIUM.

6. Z. bovis. The skeleton of the ox. Found, about a century ago, between Querfort and Gatterstedt, in Saxony.

7. Z. cervi. The skeleton, horns, or separate bones of the stag. Found in the mountains of England and Ireland, and in the mountains near Bayreuth, in Silesia.

ZOOLOGY. (ζωον, life, and λογος, a discourse.) The doctrine or description of the animal kingdom, as botany or phytology is that of the vegetable, and mineralogy that of the mineral or fossil kingdom. Natural history, properly speaking, embraces the whole of these departments of knowledge, though occasionally but improperly restricted to the first. In the article introduced under this term we have used it in this comprehensive sense, and even limited ourselves to remarks that may be regarded as an introduction to the whole; referring to the article before us, as well as to those under the terms BOTANY and MINERALOGY, for a detailed classification of the several branches of natural history which they respectively indicate.

As the inferior animals upon our globe are so numerous, it would be impossible for mankind to distinguish them from one another, or to gain any considerable knowledge of their relative natures and habits, if they did not exhibit remarkable differences which render it easy to establish distinctions among them. Hence zoologists have always been attentive to these differences, and by dividing animals accordingly, either into more or fewer classes, have conveniently formed what are called *methods*. It is certain, indeed, that no such classifications exist in nature, where all the various individuals constitute one continued and uninterrupted chain; yet they considerably assist the memory, and may be rendered truly useful guides in the study of animated being. Methods are, therefore, to be considered as instruments suited to our weakness, which may be beneficially resorted to in tracing the wide field over which the stores of nature lie strewed in an immeasurable harvest.

The divisions which Aristotle adopted were very general and simple, being chiefly taken from the external characters of form, food, habit, or habitation: he did not, indeed, conceive that in his age zoology was sufficiently advanced for any thing of comprehensive or methodical arrangement; but he was sufficiently sensible of its advantages, and strongly recommended to succeeding naturalists a minute attention to the internal as well as the external organs of animals; and it is upon this recommendation that most of the systems of modern times have been founded; as those of Gesner, Aldrovandi, Ray, Johnston, Charleton, Klein, Linnéus, Artedi, Brisson, Daubenton, Geoffroy, Cuvier, and Blumenbach: all of whom have flourished since the middle of the sixteenth century; most of whom have contributed something of importance to a scientific method of studying and distributing animals, and the most celebrated of whom are Ray, Linnéus, Cuvier, and Blumenbach.

The system of Ray is derived in its outlines from the recommendation of Aristotle to attend to the different structures of different descriptions of animal life, and his observation that one of these differences consists in their possessing lungs and a sanguineous system, or their being destitute of lungs and exsanguineous. The Linnéan method is, for the most part, built upon this general arrangement of Mr. Ray, especially in regard to quadrupeds: it is, however, an extension of it, and certainly an improvement. That of M. Cuvier, in its subordinate divisions, is founded upon both these; but in its primary and leading distinctions upon the nervous or sensorial, instead of upon the respiratory and sanguineous systems; all animals being, upon M. Cuvier's scheme, divided into vertebrated and invertebrated; those furnished with a back-bone, or vertebral chain for the purpose of inclosing the spinal marrow, and those destitute of such a chain: the secondary divisions consisting of *vertebrated animals with warm blood*, or blood warmer than the surrounding medium, and *vertebrated animals with cold blood*, or blood colder than the surrounding medium: *invertebrated animals with blood-vessels*, and *invertebrated animals without blood-vessels.* The system of Blumenbach in its general divisions is the same as that of Cuvier, and merely differs in its orders or other subdivisions.

It would be an useless task to run through the whole of the arrangements we have now referred to and explained as to their principles. The scheme of Linnéus is at present the most popular; though that of Cuvier presses hard upon it, and may, perhaps, hereafter take the lead of it: it is somewhat more abstruse, but considerably more definite; and offers a noble specimen of scientific ingenuity applied to one of the noblest branches of scientific study. It is to these two methods, therefore, that we shall chiefly confine ourselves.

Linnéus divides the whole animal kingdom into six classes. The characters of these six classes are taken from the internal structure of animals, in the following manner:

Class. I. *Mammalia*, or *Mammals*, includes all animals that suckle their young. The characters of this class are these: the heart has two ventricles and two auricles; the blood is red and warm; and the animals belonging to it are viviparous.

Class II. *Aves*, or birds. The characters are the same with those of class I. excepting that the animals belonging to it are oviparous.

Class III. *Amphibia*, or amphibious animals. The heart has but one ventricle and one auricle; the blood is red and cold; and the animals belonging to this class have the command of their lungs, so that the intervals between inspiration and expiration are in some measure voluntary.

Class IV. *Pisces*, or fishes. The heart has the same structure, and the blood the same qualities, with those of the amphibia; but the animals belonging to this class are easily distinguished from the amphibia, by having no such voluntary command of their lungs, and by having external branchiæ or gills.

Class V. *Insecta*, or insects. The heart has one ventricle, but no auricle; the blood is cold and white; and the animals are furnished with antennas or feelers.

Class VI. *Vermes*, or worms. The characters are the same with those of class V. only the animals have no antennæ, and are furnished with tentacula.

The first class, *Mammalia*, is subdivided into seven orders; the characters of which are taken from the number, structure, and situation of the teeth.

Order I. Primates: these have four incisores, or fore-teeth, in each jaw, and one dog-tooth. N. B. By one dog-tooth, Linnéus means one on each side of the fore-teeth in both jaws. This order includes four genera, viz. homo, simia, lemur, vespertilio.

Order II. Bruta: these have no fore-teeth in either jaw. This order includes seven genera, viz. rhinoceros, elephas, trichechus, bradypus, myrmecophaga, manis, dasypus.

Order III. Feræ: these have, for the most part, six conical fore-teeth in each jaw. This order includes ten genera, viz. phoca, canis, felis, viverra, mustela, ursus, didelphus, talpa, sorex, erinaceus.

Order IV. Glires: these have two fore-teeth in each jaw, and no dog-teeth. This order includes ten genera, viz. hystrix, lepus, castor, mus, sciurus, myoxus, cavia, arotomys, dypus, hyrox.

Order V. Pecora: these have no fore-teeth in the upper jaw, but six or eight in the under jaw. This order includes eight genera, viz. camelus, moschus, giraffa, cervus, antelope, capra, ovis, bos.

Order VI. Belluæ: these have obtuse fore-teeth in each jaw. This order includes four genera, viz. equus, hippopotamus, sus, tapir.

Order VII. Cete, or whale kind: these have no uniform character in their teeth, being very different in the different genera; but are sufficiently distinguished from the other orders of mammalia, by living in the ocean, having pectoral fins, and a fistula or spiraculum upon the head. This order includes four genera, viz. monodon, balæna, physeter, delphinus.

The generic characters of the *Mammalia* are, like those of the orders, almost entirely taken from the teeth, excepting in the vespertilio, which, besides the character of the order derived from the teeth, has this farther mark, that there is a membrane attached to the feet and sides, by means of which the creature is enabled to fly: the hystryx, whose body is covered with sharp spines: and the whole order of pecora, whose genera, besides the characters taken from the teeth, are distinguished into those which have horns, those which have no horns, and by peculiarities in the horns themselves.

The specific characters are very various, being taken from any part of the body which possesses a peculiar uniform mark of distinction. As examples of these characters are to be found under the proper name of each genus, it is unnecessary to say any thing further concerning them in this place.

The second class, *Aves*, is subdivided into six orders; the characters of which are taken chiefly from the structure of the bill.

Order I. The accipitres have a hooked bill, the superior mandible, near the base, being extended on each side beyond the inferior; and in some it is armed with teeth. This order includes four species, viz. vultur, falco, strix, lanius.

Order II. The picæ have a convex, compressed bill, resembling a knife. This order contains twenty-three genera, viz. trochilus, certhia, upupa, glaucopis, buphaga, sitta, oriolus, coracias, gracula, corvus, paradisea, ramphastos, trogon, psittacus, crotophaga, picus, yunx, cuculus, bucco, buceros, alcedo, merops, todus.

Order III. The anseres have a smooth bill, broadest at the point, covered with a smooth skin, and furnished with teeth: the tongue is fleshy; and the toes are palmated or webbed. This order includes thirteen genera, viz. anas, mergus, phaëton, plotus, rhyncops, diomedea, aptenodyta, alca, procellaria, pelecanus, larus, sterna, colymbus.

Order IV. The grallæ have a somewhat cylindrical bill: the tail is short, and the thighs are naked. This order contains twenty genera, viz. phœnicopterus, platalea, palamedea, mycteria, tantalus, ardea, corrira, recurvirostra, scolopax, tringa, fulica, parra, rallus, vaginalis, psophia, cancroma, scopus, glareola, hæmatopus, charadrius.

Order V. The gallinæ have a convex bill: the superior mandible is vaulted over the inferior: the nostrils are half covered with a convex cartilaginous membrane: and the feet are divided, but connected at the inmost joint. This order contains ten genera, viz. struthio, didus, pavo, meleagris, penelope, crax, phasianus, numida, tetrao.

Order VI. The passeres have a conical sharp-pointed bill; and the nostrils are oval, wide, and naked. This order contains seventeen genera, viz. loxia, colius, fringilla, phytotoma, emberiza, caprimulgus, hirundo, pipra, turdus, ampelis, tanagra, mucicapa, parus, motacilla, alauda, sturnus, columba.

The generic characters of this class are taken from peculiarities in the bill, the nostrils, the tongue, the feet, the feathers, the face, the figure of the body, &c.

The characters which serve to distinguish the species are very various: for example, the colour of the particular feathers or parts of feathers; crests of feathers on the head, disposed in different manners; the colour of the cere or wax; the colour of the feet; the shape and length of the tail; the number, situation, &c. of the toes; the colour and figure of the bill, &c.

The third class, *Amphibia*, is divided into two orders.

Order I. The reptiles have four feet, and breathe by the mouth. This order contains four genera, viz. testudo, draco, lacerta, rana.

Order II. The serpentes have no legs, and breathe by the mouth. This order contains six genera, viz. crotalus, boa, coluber, anguis, amphisbæna, cæcilia.

The generic characters of this class are taken from the general figure of the body; from their having tails or no tails; being covered with a shell; having teeth or no teeth in the mouth; being furnished with lungs; having covered or naked bodies; from the number, situation, and figure of the scuta and scales; from the number and situation of the spiracula; from the situation of the mouth, &c.

The specific characters are so very various, that it would be superfluous to enumerate them.

The fourth class, *Pisces*, is subdivided into six orders, the characters of which are taken from the situation of the belly fins.

Order I. The apodal have no belly fins. This order contains eight genera, viz. muræna, gymnotus, trichiurus, anarchichas, ammodytes, ophydium, stromateus, xiphias, sternoptycs, leptocephalus.

Order II. The jugular have the belly fins placed before the pectoral fins. This order includes five genera, viz. callionymus, uranoscopus, trachinus, gadus, blennius, kurtus.

Order III. The thoracic have the belly fins placed under the pectoral fins. This order comprehends nineteen genera, viz. cepola, echeneis, coryphæna, gobius, cottus, scorphæna, zeus, pleuronectes, chætodon, sparus, scarus, labrus, sciæna, perca, gasterosteus, scomber, centrogaster, mullus, trigla.

Order IV. The abdominal have the belly fins placed behind the pectoral fins. This order contains sixteen genera, viz. cobitis, amia, silurus, teuthis, loricaria, salmo, fistularia, esox, elops, argentina, atherina, mugil, exocætus, polynemus, clupea, cyprinus.

Order V. The branchiostegous have the gills destitute of bony rays. This order contains ten genera, viz. mormyrus, ostracion, tetrodon, diodon, syngnathus, pegasus, centriscus, balistes, cyclopterus, lophius.

Order VI. The chondropterygious have cartilaginous gills. This order contains five genera, viz. accipenser, chimæra, squalus, raia, ptromyzon.

The generic characters of this class are taken from peculiarities in the head, the mouth, the teeth, the nostrils, the rays in the membrane of the gills, the eyes, the general figure of the body, the figure of the tail, the situation of the spiracula, &c.

The specific characters are taken from peculiarities in all the parts above enumerated, and many others.

The fifth class, *Insecta*, is subdivided into seven orders, the characters of which are taken from the wings.

Order I. The coleopterous have four wings, the two superior ones being crustaceous, and furnished with a straight suture. This order comprehends forty-seven genera, viz. scarabæus, lucanus, dermestes, melyris, byrrhus, silpha, tritoma, hydrophilus, hister, pausus, bostrichus, anthrenus, nitidula, coccinella, curculio, brentus, attelabus, erodius, staphylinus, scaurus, zygia, meloe, tenebrio, cassida, opatrum, mordella, chrysomela, horia, apalus, manticora, pimelia, gyrinus, cucujus, cryptocephalus, bruchus, ptinus, hispa, buprestis, necydalis, lampyris, cantharis, notoxus, elater, calopus, alurnus, carabus, lytta, serropalpus, cerambyx, leptura, rhinomacer, zonitis, cicindela, dyticus, forficula.

Order II. The hemipterous have four wings, the two superior ones being semicrustaceous and incumbent, *i. e.* the interior edges lie above one another. This order includes fourteen genera, viz. blatta, pneumora, mantis, gryllus, fulgora, cicada, notonecta, nepa, cimex, macrocephalus, aphis, chermes, coccus, thrips.

Order III. The lepidopterous have four wings, all of them imbricated with scales. This order contains three genera, viz. papilio, sphinx, phalæna.

Order IV. The neuropterous have four wings, interwoven with veins, like a piece of net-work, and no sting in the anus. This order includes seven genera, viz. libella, ephemera, hemerobius, myrmelion, phryganea, panorpa, rophidia.

Order V. The hymenopterous have the same characters with the former, only the anus is armed with a sting. But this mark is peculiar to the females and neuters; for the males have no sting. This order comprehends fifteen genera, viz. cynips, tentredo, sirex, ichneumon, sphex, scolia, thynnus, leucospis, tiphia, chalcis, chrysis, vespa, apis, formica, mutilla.

Order VI. The dipterous have two wings, and two clavated halteres or balances behind each wing. This order contains twelve genera, viz. diopsis, tipula, musca, tabanus, empis, conops, oestrus, asilus, stomoxys, culex, bombylius, hippobosca.

Order VII. The apterous have no wings. This order contains fifteen genera, viz. lepisma, podura, termes, pediculus, pulex, acarus, hydrachna, aranea, phalangium, scorpio, cancer, monoculus, oniscus, scolopendra, julus.

The sixth class, *Vermes*, is divided into five orders.

Order I. The intestinal are the most simple animals, being perfectly naked, and without limbs of any kind. This order contains twenty-one genera, viz. ascaris, trichocephalus, uncinaria, filaria, scolex, ligula, lingratula, strongylus, echinorhynchus, hæruca, cucullanus, caryophyllæus, fasciola, tænia, furia, gordius, hirudo, lumbricus, sipunculus, planaria.

Order II. The molluscous are likewise simple naked animals, without any shell; but they are brachiated, or furnished with a kind of limbs. This order comprehends thirty-one genera, viz. actinia, clava, mammaria, pedicellaria, ascidia, salpa, dagysia, pterotrachea, limax, aplysia, doris, tethys, holothuria, terebella, triton, sepia, clio, lobaria, lernæa, scyllæa, glaucus, aphrodita, amphitrite, spio, nereis, nais, physsophora, medusa, lucernaria, asterias, echinus.

Order III. The testaceous have the same characters with those of order II. but are covered with a shell. This order includes thirty-six genera, viz. chiton, lepas, pholas, mya, solen, tellina, cardium, mactra, donax, venus, spondylus, chama, arca, ostrea, anomia, mytilus, pinna, argonauta, nautilus, conus, cypræa, bulla, voluta, buccinum, strombus, murex, trochus, turbo, helix, nerita, haliotis, patella, dentalium, serpula, teredo, sabella.

Order IV. The zoophitic are compound animals, furnished with a kind of flowers, and having a vegetating root and stem. This order contains fifteen genera, viz. tubipora, madrepora, millepora, cellepora, isis, antipathos, gorgonia, alcyonium, spongia, flustra, tubularia, corralina, sertularia, pennatula, hydra.

Order V. The infusorial consist of very small simple animals. This order contains fifteen genera, viz. brachionus, vorticella, trichoda, cercaria, leucopera, gonium, colpoda, paramecium, cyclidium, bursaria, vibrio, enchelis, bacillaria, volvox, monas.

Upon this arrangement of Linnéus we shall make a few general observations, following the course in which it now lies before the reader, and referring him for a more minute description of the respective orders and genera to the articles that will be found under their distinctive names.

In the first or MAMMALIAN CLASS, so denominated from the females having a mammal, or sucking organ, which is found in no other class whatever, the character of the orders is taken in the first place, as we have already observed, from the structure, number, or position of the teeth. Now it so happens that there are a few animals that in this respect have a resemblance to mankind; or in other words possess equally four front or cutting teeth (incisores) in each jaw, with a small tusk or dog-tooth on each side of the other four: and from this trivial circumstance Linnéus has associated all these into one common order, to which, in consequence of its embracing the race of man, he has given the name of *primates* or *chiefs:* and hence the bat is ludicrously honoured with this common title. In the articles HOMO and MAN, we have pointed out this absurdity at some length, and have observed that man possesses characters peculiar to himself, and which ought to separate him from all other animals whatever; and we are glad to find that the same idea has prevailed in the arrangement of Dr. Shaw, and is gaining ground among other zoologists of the present day.

There is another incongruity in the contents of this class, which we cannot avoid pointing out, though without being able to find a very easy remedy. We mean that of making it embrace the *whale tribes,* which constitute its seventh order, and thus associating dogs, horses, oxen, sheep, and bats, in one common division with the dolphin, whale, narwhal, and grampus;—animals that cannot live out of deep seas, with animals that cannot long live in them. There is however a great difficulty in this subject: for though the whales or cetaceous animals are nearly approximated to fishes in their external form and residence in the waters, yet they are in reality aquatic mammals; their whole internal structure resembles that of other mammals, and their skeleton is formed on the same plan; differing chiefly in the want of hind-legs, the peculiar structure of the tail supplying that defect, being extremely strong and tendinous, and slightly divided into two horizontal lobes, but not furnished with internal bones. Their lungs, intestines, &c. are formed on the same plan as those of quadrupeds. They have also warm blood, and, like other mammals, suckle their young. And hence not Linnéus only, but Cuvier and Blumenbach have thought themselves compelled to introduce the cetaceous animals into the same class as quadrupeds.

Yet, on the other hand, their general habits, as well as their external form, are so like those of fishes, that other naturalists have felt equally compelled either to arrange them with the latter, or to make a distinct class of them. Properly speaking, they have neither hands nor feet, many of them no teeth; instead of nostrils they have a blowing-hole, and their external integument and the possession of fins give them a near alliance to the fish-tribes: and hence Bloch has admitted the porpoise, and Willoughby the whole family into his ichthyology; while Pennant, following the same steps, has excluded them from his work on quadrupeds.

These are the chief peculiarities, or difficulties that occur in the first class of the Linnéan method. There is indeed some incongruity in arranging the horse, as in the fourth order, with the hippopotamus, swine, and tapir; which three last have a much nearer general resemblance to the elephant, rhinoceros, &c. of the second order, in consequence of which the reader will find them united together in the method of Cuvier under the title of *pachydermata*, or *thick-skinned* animals; while the horse is constituted a distinct family under the name of *solipeda*, or *whole-hoofed*. In this respect the method of Ray has some advantages over that of Linnéus, which, without our copying again, the reader will find under the article **Quadruped**. Ray's method has, in the instance before us, been taken as an outline by Klein, Pennant, Cuvier, and Blumenbach. The mammoth, and various other huge and lately discovered quadruped skeletons, have been placed by Cuvier among the *pachydermata*.

In the **bird-class**, constituting that branch of natural history which is denominated *ornithology*, the reader will perceive that Linnéus has made choice of the form of the *bill* for the chief generic character: adverting only secondarily to that of the claw, or of the tongue: while his orders are drawn indiscriminately from their structure or their habits. Klein has taken the claw, or toes, as the chief feature of distinction; Cuvier has nearly united the methods of Linnéus and Klein in his orders; and has also mixed them in his generic characters.

The *accipitres*, or predacious birds, are generally remarkable for building a negligent or slightly-formed nest in lofty situations, and laying from two to four eggs. The female in this order is always larger than the male; and the whole tribe, in the language of Linnéus, may be considered as analogous to the order *feræ* among quadrupeds. They are naturally warlike and destructive: and when tamed, a few of them claim importance from their subserviency to our pleasures in the field; a subserviency which laid a foundation for the now neglected art of falconry. But they are otherwise of no immediate utility to man.

The *picæ*, or pies, comprehend a numerous assemblage, and are so various in their form and habits, that hardly any characters, however general, will apply to them all. They live upon fruits, grains, insects, and flesh. As an article of food, they are generally reckoned impure: their feathers are of little use for any of the purpses of human life. Though they are fond of the vicinity of man, they are the least profitable of his servants; for they live upon the fruits of his industry, while their death makes no compensation for the mischiefs they have committed. They are noisy, restless, and loquacious; some of them possess the faculty of imitating the human voice; and instructing them in the art of speaking constitutes frequently the amusement of the idle.

Though useless or hurtful to man, birds of this order are, by their remarkable ingenuity, and active habits, well fitted for society. "Could we," says an ingenious naturalist, "suppose a kind of morality among the feathered race, we should find that this order is by far the most industrious, the most faithful, the most constant, and the most connubial. The rapacious kinds drive out their young before they are fit to struggle with adversity; but the pie kind cherish their offspring to the last. The poultry class are faithless and promiscuous in their courtship; but these live in pairs, and their attachments are wholly confined to each other. The sparrow kind frequently overleap the bounds of nature, and make illicit varieties; but these never. They live in harmony with each other. Every species is true to its kind, and transmits an unpolluted race to posterity."

Birds of this order, therefore, generally live in society, for which their habits are wonderfully adapted. Both male and female unite their labours in building their nests; and in general, both are employed alternately in the duty of incubation. When the young are produced, they are abundantly supplied by the joint labours of both parents. They are peculiarly distinguished for establishing a kind of government for the general safety of the society. One bird watches for the whole flock, while it is feeding; and among the crows, there has been observed a sort of distributive justice, by which every individual is punished for his offences against the laws of the society.

As they in general live by pilfering from the property of man, all the tribes are marked by a look of archness and cunning: they are able to elude more successfully than other birds all the efforts of man to destroy them; efforts, which, from their frequent pillages, he is continually obliged to practise. In the jackdaw the habit of thieving seems to be instinctive; for, even in his domestic state, when placed above the reach of necessity, he carries off to his nest every toy or glittering substance which he can find. A whole family has been alarmed at the loss of a ring; every servant has been accused; and all in the house, conscious of their own innocence, have been suspecting each other, when, to their surprise, the abstracted goods have been found in the nest of a tame magpie or jackdaw, which, though alone guilty, had alone escaped suspicion.

The *anseres*, web, or palmate-footed, are considered by Linnéus as analogous to the order *belluæ*, among the mammal class. They are purely aquatic, and the peculiar conformation of the feet clearly demonstrate the design of nature to accommodate them to the waters. Among the next order, or waders, we observe some that delight in marshy ground; others venturing to fish in shallow water; and a third sort making bolder attempts, and procuring their food at some distance from the shore. The palmated tribes, however, alone launch boldly into the open ocean, and feel themselves nearly independent of land: and there is no part of the watery element into which they have not sometimes been seen to penetrate.

The order *grallæ*, or waders, is compared by Linnéus to the order *bruta* among quadrupeds. They hold a kind of middle rank, between land and water-fowls, existing with equal ease on both elements, and by some naturalists are denominated *cloven-footed water-fowls*. There are, indeed, some of both orders that make so near an approach to each other, as to have been selected for a peculiar subdivision, or additional order under the name of *fin-footed* or *pinnated* (pedibus lobatis); as, for instance, the phalarope and coot among the waders, and the grebes among the web-footed; all these being four-toed, with lobes or pinnated intersections. There are also a few other peculiarities in which they coincide. Though incapable of launching out into the vast ocean, they all venture into the lakes and rivers by swimming. Some of them, as the coots and grebes, reside upon the water almost constantly, being incapable of walking to any distance on the shore. In the power of flight they are almost as defective as in walking. In consequence of these limited powers their journeys are commonly short, being only from one lake to another: they are performed, too, mostly during night, with great effort and difficulty.

Several of the pinnated tribes are endowed with a capacity of seeing in the night, like the owls. At that season they gather their food, and perform the most important functions of their economy. This quality is not indeed peculiar to them alone; for it is shared, in a greater or less degree, by almost the whole of the water-fowls. Thus accomplished, they issue forth from the reeds along the lakes and shores, when the finny tribes are at rest, and plunder and devour them without molestation. The different genera of these birds are variously endowed with acquatic powers: while some are confined to rivers and lakes, others venture into the sea, and engage in a wider range of depredation upon the shores.

Under other systems, and especially the simpler systems of the elder naturalists, it is easy to conceive that the waders and web-footed were collocated in one common division, and described by the general name of aquatic birds.

It is a curious fact that those that are completely aquatic are more easily tractable than the rest. Of these, perhaps, an equal number might be domesticated and rendered useful to man as of the land birds. The successful experiments that have, long since, been made upon the swans, geese, and ducks, serve at once to illustrate this assertion, and to demonstrate the advantages that might be obtained by farther extending the dominion of man over this numerous division. To this, however, there are many obstacles: for man, before he can become master of birds that are inhabitants equally of the sea and the air, must make a double conquest. Free upon both these vast elements, they seem destined, for ever, to elude his power, and to maintain their native independence. The birds that are purely aquatic have no farther connection with the land than is necessary for depositing the fruits of their loves, and for rearing their young.

It is, accordingly, by means of this love for offspring, so natural to these creatures, that we have been able to bring them from the sea, and attach them to the habitations of men. Eggs of water-fowls, taken from the shore, and hatched under a hen, produce a race, which, for the first generation, is shy and timid. After, however, having tasted the sweets of love in this domestic asylum, these birds, and still more their descendants, become tame and familiar. In a few generations all regret for the loss of liberty is effaced; and they become reconciled to a captivity, in which they no longer find any inconvenience.

The aquatic tribes, though they be plentifully furnished with oil, which is excreted near their tails, and spread by them over their feathers, are yet incapable of always resisting the effects of water. Their plumage becomes moist, and pervious to that element, when they are long without visiting the shore: it must, at times, therefore, be exposed to the dry air, in order to render it again impervious to water. Of almost all palmipede birds the male is larger than the female; but not in the same proportion that we have observed to take place among the rapacious tribes.

As the duck is the most useful of all the inhabitants of the water, so nature has happily multiplied this genus more than any other aquatic tribes. It appears in a thousand varieties; and the numbers of each species far exceed all computation. The water-fowls, of which this forms the chief, that frequent the shores of Europe, are prodigious: but still they bear no proportion to those immense flocks that swarm upon the shores of the American continent; where the numbers of the human race are fewer, and their dominion over the animal world far less extensive before they became acquainted with the use of fire-arms.

As upon land, so upon water, there are many birds that may be deemed rapacious, if the capacity of devouring other animals merit that title. Although few of the water-fowls prey upon their own kind, yet the far greater part of them subsist by eating fishes. The granivorous aquatic birds are few in comparison to those which prey upon the finny tribes; nature having adjusted their appetite to the species of food most abundant in the element in which they reside.

The voice of aquatic fowls differs from that of the land birds as remarkably as their food: it is louder, more harsh, and monotonous. Probably, we may assign an adequate motive for this peculiarity. Amidst the noise of the raging waves the gregarious kinds would soon be dispersed from each other and perish, were they not thus capable of sounding the alarm to the kindred tribes, when about to stray from their society, or to encounter danger. The physical cause, however, consists in the peculiar configuration of the trachea or the larynx alone. The supposed melody of the anas cygnus, or musical swan, may seem an exception to what is here advanced; but, as Buffon alleges with great justice, that even this is a melody of poetic fiction alone.

The water fowls are mostly all fit for food, though the flesh of none of them be so palatable as that of the gallinaceous or passerine orders. It uniformly contracts a rancid and oily taste, from the nature of the food upon which these birds subsist. This taste still, in some measure, remains in the flesh of the goose and the duck, which all the arts of domestication are not able to remove. It is, however, much lessened by confining these birds to the land, and feeding them with grain.

There are many other points of distinction in which we might contemplate the land and water birds. The latter have a far greater facility of spreading from one continent to another, in consequence of their capacity of travelling by water, and of relieving their flight by alighting on this element. We find, accordingly, that most of the aquatic tribes are common to both the old and the new world; and that they have even been able to make their way into those distant islands, towards the extremities of the globe, that seemed formerly to be lost in the immense ocean, and, from their barrenness, to forbid the approach of every animated being. And, what is peculiarly remarkable, they are equally as numerous in the cold and high latitudes as at the equator. Nor are the palmipede water fowls alone thus able to spread over the globe, but also the waders; because these, from their residing upon the shore, enjoy a more equal temperature than what is experienced by birds which inhabit the interior parts of the land, and, consequently, can penetrate farther, either to the north or to the south.

The aquatic tribes seem not even bounded in their residence by the limits of the land itself. The floating mountains of ice towards the poles afford them a retreat during tempestuous weather, and a cradle for their young. They require no grain or vegetable food, which nature in these frozen regions cannot produce. Hence they have been seen fixing their residence upon these islands of ice in the same manner as upon land. There they sleep; there too they sometimes hatch their young.

But the seas in which fishes are most abundant are most fully peopled with these water fowls: as the fertile parts of the earth are most copiously replenished with land birds. Some of the rivers in America, in which provision is abundant, are covered with aquatic birds. In several islands too, at a small distance from the shore, the soil consists, to a great depth, of nothing but their dung. Such is the case in some of the western isles of Scotland, and also on the coasts of some parts of Greenland; where aquatic birds are so numerous, that the natives drive them into bags, and destroy them by thousands. There, and in the island of Faro, they constitute a large proportion of the food of the inhabitants.

As the extent of the ocean is greater than that of the land, and the fund of subsistence which it contains is in proportion, the number of water-fowls, probably, exceeds that of the land birds, although the species be less various. The tribes of waders seem, by their external structure, fitted to live upon land; but they are endowed with appetites that attach them to the waters. While they derive all their food from the marshes and fens, they are unable to search for it upon the surface of the deep. Their structure is happily accommodated to this situation; for they are formed with long legs, naked above the knee, to admit of their travelling in shallow water in quest of food: and, in those that feed upon fishes, the neck is disproportionably long, to enable them to grope for them without immersing the whole body. Those that search in the mud for minute insects or worms, as the snipe and woodcock, have slender weak bills, and olfactory nerves of such exquisite sensibility, that, even when their prey is out of the reach of their eyes, they are directed to it by its smell. Of the waders, moreover, some have the toes divided to their origin; others have them connected by a small membrane as far as the second joint: the first are properly cloven-footed, and the second semipalmated. The bodies of this sort of birds are light and slender. Those that live upon mud, and the insects or worms deposited there, are deemed a delicate food; while such as live upon fishes contract a heavy and oily taste, similar to that of their food. In their endowments they seem inferior to other orders. Their nests are constructed with less ingenuity than those of the passerine tribes. They are not possessed of the courage of the rapacious birds, or of the docility of the poultry kinds. None of the waders, accordingly, has been reduced into a domestic state, or admitted to share the society and protection of man.

For the *gallinæ*, the gallinaceous or poultry tribes, Linnéus, who, as we have already seen, has traced a resemblance between the different orders of birds and mammals, has found an apt similitude in the tribes of *pecora*, or *ruminants*: and it is unquestionably this order that must be regarded as the most serviceable to mankind of the entire class. The rapacious kinds administer nothing to his utility, and not much to his amusement. The smaller birds contribute indeed to his amusement by their music, but to little or nothing more than to his amusement. It is from the poultry tribes alone that he derives any solid advantages, or considerable accession to the necessaries of life.

Birds of this order are distinguished by the comparative smallness of the head; by their heavy and muscular bodies; and the whiteness and salubrity of their flesh. Their bills are short, strong, and arched; the upper mandible shutting over the edges of the lower, and thus fitted for picking up grain, which is their principal nourishment. Their legs are strong and short; their toes furnished with broad claws, for scratching the ground. There are few of them qualified for long flights, or migrating from one country to another, on account of the shortness of their wings.

The variety of food upon which they are capable of subsisting renders them, in general, proper for domestication; and the fertility, for which they are remarkable, when abundantly supplied with food, enables man to convert them into a mean of adding considerably to the stock of his provisions. Like the ruminant cattle, they are indolent, gregarious, and voluptuous: when made prisoners, they forget equally their former companions, and the pleasures of freedom. Satisfied with the single enjoyment of eating, they grow tame, contented, and fat in their confinement; and are peculiarly fitted for the purposes for which they are destined by their owners.

The gallinaceous birds, though not restricted to any one species of food, are in general granivorous; and, for the trituration and digestion of this species of food, nature has made a very ingenious provision, by the particular structure of their digestive organ. Like ruminant quadrupeds, they have two, and some of them three stomachs. First, the crop, or pouch, where the grain is moistened or softened, as a preparation for the process that is to follow. From this crop the grain passes secondly to an intermediate canal, furnished with a number of glands, for the secretion of a kind of juice, that still farther mollifies the contents; and from this canal they pass into the third stomach, which we call the gizzard. Here the grand operation of digestion is completely finished. This organ is composed of a hard, horny substance, and its sides are capable of contracting themselves, and of rubbing the contained food with great force, by means of strong muscles with which it is purposely supplied. No sort of grain, nor even substances far harder than grain, can resist the action of the gizzard of a fowl. Glass and iron are gradually worn down by it, and digested, as has been fully ascertained by many experiments. That this effect is the result of muscular action, and not of any fluid acting as a solvent, has also been fully established. Small tubes of iron, open at each end, previously filled with a few grains of barley, have been introduced into the gizzard of fowls: and, at the end of two days, when these tubes were taken out, they were found considerably diminished in their weight, by the violent trituration of the stomach; while the grains of barley, which they contained, remained entire, and were only swollen with moisture, in the same manner that they would have been had they been exposed to the same humidity in any other place. Had the process of digestion, therefore, in the stomach of the fowl been carried on altogether by a solvent, the grain must have been completely digested in that time. It appears, then, that in the whole order of gallinaceous birds digestion is performed chiefly by muscular action, and only partly by means of any acrid gastric juice, as we know is altogether the case among all rapacious animals that devour flesh.

In the Linnéan arrangement of this order there are two or three remarkable genera of birds which are placed by several ornithologists in a different order, as the struthio, otis, and didus, or in plain English, the ostrich tribes, including the cassowary and emu, the bustard and the dodo. The two first of these kinds are carried by some naturalists into the order of grallæ, to which, indeed, they seem nearly as much to relate as they do to the gallinæ, which others make a distinct division of the three, under the name of the *struthious order*. Of these birds the largest are the ostrich kinds; and of these again the most remarkable and useful is the struthio camelus, the black or common ostrich; for though incapable of flight, like all the rest of this division, it derives a rapidity of running from its wings, which renders it fleeter than the fleetest racer on the Newmarket turf. It is also capable of being tamed, and mounted, and employed for the different purposes of a riding horse.

The character of the dodo is altogether the reverse. "Far from exciting," observes Buffon, "the idea of swiftness by its proportions, it appears to have been formed on purpose to strike the imagination, as the most clumsy and unwieldy of all beings. Represent to yourself a massive, and almost cubical body, but barely supported upon two short and thick pillars, and overtopped by a head and neck of so grotesque a form, that you would take them for the design of some caricature painter. The head consists almost entirely of two large chaps, that open behind the eyes, almost as far as the ears; so that when the bird gapes it seems almost all mouth. The bill is of an extraordinary length and thickness; and both mandibles are concave towards the middle, but swelling towards the end, and hooked at the points oppositely, like two pointed spoons laid together by the backs. From all this there results a stupid and voracious physiognomy, which is increased by a bordering of feathers around the base of the beak, which spreads over the face like a cowl, and completes this picture of deformity."

Bulk, which in other animals implies strength, in this only contributes to inactivity. The ostrich, emu, and cassowary, are not more capable of flying than the dodo. They, however, are swift in running; whereas, this bird, as if oppressed with its own weight, possesses hardly sufficient strength to drag itself along. One would imagine that this bird, which resembles the sloth among quadrupeds, has been formed of some rude and ill organized matter, into which the principles of life have been infused with too sparing an hand. The dodo is furnished with wings; but they are too weak and too short to raise it into the air. It has a tail; but this tail is disproportioned, and out of its place. One would take it for a tortoise, that had muffled itself up in the skin of a bird; for nature, in granting it these useless ornaments, seems to have intended to add embarrassment to weight, awkwardness of motion to unwieldiness of size, and to render this clumsy figure still more disgusting by presenting it under the image of a bird.

Dodos were first discovered by the Dutch in the Isle of France, which, with the adjacent isle of Bourbon, still continues to be the only place in which they are known to reside. The forbidding traits of their external appearance, as well as the unsavoury taste of their flesh, induced them to call them, in their language, the *nauseous birds*. The dodo is surpassed in size only by the three birds last described; for it is larger than either the swan or the turkey. Its feathers are, in general, soft, and their prevailing colour is grey; more deep upon the upper, and clearer upon the lower parts of the body. The legs and toes are yellow: and of the latter, three are forward, and one backward. It has commonly stones in its crop; the largest of which are of the size of a man's fist, which some have supposed to be formed there: but which Clusius, with more reason, alleges, are swallowed by this tribe for the same purpose for which they are swallowed by the other tribes of granivorous birds. Similar stones are found in the gizzard of the ostrich and cassowary, and considerably aid the digestive function.

The solitaire, and bird of Nazareth, described by Carré, Leguat, and Cauche, appear to have a very near affinity to the dodo; but so imperfectly are they hitherto known, that it is not yet ascertained whether their descriptions belong to three different species, or to the same bird. The solitaire, acording to Leguat, is forty pounds in weight; and of a grey colour mixed with brown. The females are remarkable for their neatness in the position and adjustment of their feathers; and their motions are graceful. By Carré's account, they are of a brown approaching to yellow; and they appeared to him remarkably beautiful. In these respects, it must be allowed, that this bird differs from the dodo. Both, however, inhabit the same isle; both are incapable of flight; all the three are equally voracious, and indiscriminately devour all that is offered them. They have, each, the same kind of stones in their crop; and the general structure of their bodies is similar. The solitaire is described as exceedingly shy, and very seldom in the society even of its own species. It builds its nest upon a large mass of leaves, which it collects for the purpose. The female lays but one egg, at least produces but one bird, after having hatched for seven weeks.

The order of *passeres*, or small singing birds, is by Linnéus considered as analogous to the order *glires* among quadrupeds. For the most part they are remarkable for their beauty and agility. They are continually in motion, and endowed with the powers of song. They enliven the retired and shady grove by the melody of their voices. Those birds, of the superior order, that interest us by their usefulness, or the fierceness of their habits, such as the poultry, or rapacious kinds, have all harsh and screaming voices. The plaintive accents of the pigeon, on the contrary, consist of a soothing tendency, while most of the other beautiful little families we are now to review insinuate themselves into our affections by their delightful songs, their external beauty, and the familiarity of their manners.

Conscious of enjoying the favour of man, they live with him in some degree of confidence; and, while the larger birds, from a suspicion dictated by ill treatment, or suggested by guilt, fly to the depth of the forest, and dread the vicinity of man, these hop about the hedges, and sides of the woods, seldom removing far from his habitation. This alliance is indeed interested on their part; for it is only on the cultivated fields, and even around houses and gardens, that they can find, in abundance, those seeds and insects upon which they subsist. In the extensive wilds, or in the depths of the forest, none of those kinds of food that are congenial to their natures is to be found. "As we enter, (says Goldsmith,) deeper into the uncultivated woods, the silence becomes more profound: there are none of those warblings, none of those murmurs that awaken attention, till you draw near the habitations of men; there is nothing of that confused buzz, formed by the united, though distant voices of quadrupeds and birds; but all is profoundly dead and solemn. Now and then, indeed, the traveller may be roused from this lethargy of life by the voice of an heron, or the scream of any eagle; but his sweet little friends, the warblers, have totally forsaken him."

The want of food is not the only reason why the small birds do not penetrate into the forest. They avoid these dreary retreats also from the principle of self-preservation. Almost all the rapacious kinds, like robbers, hide themselves in the depth of the woods; and, if they do not find a desert there, soon make one; for the passerine tribes fly from their tyranny into the open fields; where, in the vicinity of man, they find that the most audacious of their enemies are afraid to attack them.

When the small birds have taken up their residence in a particular grove or thicket, they seldom remove to any distance from the spot. The wren and the red-breast keep possession of their own hedge, with a perseverance that sometimes proves fatal; and even those birds of passage, that, at certain seasons of the year, remove to a different part of the country, are remarkable for the very limited range of their flights during the months of visitation. Food is the great cause of all their motions, and, as soon as that is obtained, they resume, in the vicinity of their nest and of their young, their sportive exercises or their song.

As food, however, is not found in equal quantities at all seasons of the year, in every part of the country, a great number of the passerine tribes are obliged to remove in quest of it to very distant countries; and even those which remain with us the whole year make periodical flights to a different district, at certain seasons. Their vernal flights are probably occasioned by the influence of love. They seem then to be in quest of a secure retreat, where they may obey that call of nature, and find a proper asylum for their future progeny. The autumnal flights, on the other hand, which are most numerous, seem to consist of many families, united by the parents, who are then conducting their offspring from the inland parts to the vicinity of the shore, where they may be more amply supplied with winter food.

The business of bird-catching, which supports a number of people in the vicinity of London, is founded on the annual removals of those singing birds, which are termed birds of flight, in the language of that art. The metropolis affording a ready sale for singing birds, this trade has long been established in its neighbourhood; where it is carried on, at a great expence, and with systematical perfection. The wild birds begin to fly, as birdcatchers term it, in the month of October, and part of the preceding and following months. The different species of these birds do not make their periodical flights exactly at the same time; but follow one another, in succession. The pippet commences his flight, every year, about Michaelmas; the woodlark next suceeds, and continues his flight till towards the middle of October.

It is remarkable, that, though both these tribes of birds are very easily caught during their flight, yet, when that is over, no art can seduce them to the nets. It has never hitherto been found what is the nature of that call by which the tame birds can arrest their flight, and allure them under the nets at that particular season, and at no other. Perhaps it is from their anxiety to carry the tame birds along with them, that these may avoid the severity of the winter. Perhaps, as the tame birds are males, it is a challenge to combat; or it may be an invitation to love, which is attended to by the females, who are flying above, and who, in obeying it, inveigle the males, along with themselves, into the net. If the last be the case, they are severely punished for their infidelity to their mates; for the females are indiscriminately killed by the birdcatcher: while the male is made a prisoner, and sold at a high price, for his song.

The flights of these birds begin at daybreak, and continue till noon. Autumn is the time when the birdcatcher is employed in intercepting them on their passage. The nets are about twelve yards long, and two and a half broad. They are spread upon the ground, at a small distance from each other, and so placed, that they can be made to flap suddenly over upon the birds that alight between them. As the wild birds fly always against the wind, the birdcatcher, who is most to the leeward, has a chance of catching the whole flight, if his call-birds be good. A complete set of call-birds consists of five or six linnets, two goldfinches, two greenfinches, one woodlark, one redpoll; and, perhaps, of a bullfinch, a yellow hammer, a titlark, and an aberdavine. These are placed, in little cages, at small distances from the nets. He has likewise his flur-birds, which are placed within the net, and raised or let down, according as the wild birds approach.

This, however, is not enough to allure the wild bird down; it must be called from the cages by one of the call-birds which are kept there, and which have been made to moult early in the summer, in order to improve their notes. Pennant observes, that there appears a malicious joy in these call-birds, to bring the wild ones into the same state of captivity. After they have seen or heard the approach of the wild birds, which is long before it is perceived by the birdcatchers, the intelligence is announced, from cage to cage, with the utmost ecstacy and joy. The note by which they invite them down is not a continual song, like what the bird uses in a chamber; but short jerks, as they are called by the birdcatchers, which are heard at a great distance. So powerful is the ascendancy of this call over the wild birds, that, the moment they hear it, they alight within twenty yards of three or four birdcatchers, on a spot which, otherwise, would never have attracted their notice. After the fatal string is pulled, and the nets are clapped over the unsuspecting strangers, should one half of the flock escape, such is their infatuation, that they will immediately after return to the nets, and share the same fate with their companions; and should only one bird escape, the unhappy survivor will still venture into danger, till he be also caught; so fascinating is the power which the call-birds have over this devoted race.

All the hens that are thus taken are immediately killed, and sold for threepence or fourpence a dozen. Their flesh is so exquisite, that they are regarded as a delicate acquisition to the tables of the luxurious. The taste for small birds is, however, far from being so prevalent in England as in Italy; and even the luxury of the Italians will appear parsimony when compared with the extravagance of their predecessors, the Romans.

We are informed by Pliny, that Clodius Æsopus, a tragedian of Rome, paid no less a sum than six thousand eight hundred and forty-three pounds for a single dish of musical birds; an immense tribute to caprice and gluttony. The highest price given for these singing birds in London is five guineas a piece; a strong proof how much more their song is relished here than their flesh.

It is remarkable that the female of no kind of birds, except one or two species of the loxia, ever sings; that talent being every where else the prerogative of the male. All the laborious functions fall to the lot of the tender sex; theirs is the fatigue of incubation, and the principal share in nursing the helpless brood. To alleviate these cares, and to support her under them, nature has given to the male the gift of song, and all the little blandishments and soothing arts that can win affection, or beguile trouble. These he fondly exerts, even after courtship, on some spray contiguous to the nest, during the time his mate is performing her parental duties. To the female this is not only a note of blandishment, but a pledge of her security. While her male continues on the neighbouring tree, to watch and sing, she remains in the nest in full confidence that no danger is near; whereas, if his loud and sportive strains stop all on a sudden, it is a certain signal of some dangerous intrusion, and a warning to her to provide for her escape.

Birds of this order are, in general, much more attentive to the structure of their nests than the larger kinds. As the size of their body is smaller, the heat of their nest is in proportion, and must be aided by the warm substances with which their nest is usually lined. As their eggs are much apter to lose their heat than those of superior size, these birds are proportionably more assiduous during incubation: the male constantly supplying the place of his female, and thus preventing the admission of the cold, which would prove fatal to his progeny. The habitation of these birds is no less cunningly concealed than it is artfully built. Whether on the ground, or in a bush, it is always so covered that it can hardly be seen; and, the better to escape observation, the owners never come out or go in while any one is in view.

In all animals the amorous instinct is supposed to be the foundation of courage: the one endowment is constantly found proportioned to the other. The males generally feel most strongly the ardour of love; and they, accordingly, are most distinguished by courage. The passerine tribes are equally conspicuous for gallantry and for war. However contemptible their hostilities may appear to the larger animals, they are often fatal to one of the combatants themselves. Two sparrows frequently contend for the same female, till the death of one of the antagonists decides the victory, and determines the prize. The redbreast defends his little territory with the valour and intrepidity of a poultry cock.

The union of the male and female, which is pretty faithfully observed, while the young are incapable of providing for themselves, seems entirely at an end the moment the young family is dispersed. The parent pair seem then as indifferent to each other as if they had never been acquainted. Each provides for itself in the winter; and in the spring, unmindful of former connections, goes in quest of a new companion. At that period, birds that are of the same age commonly associate together. The older females first feel the access of desire; and the older males, being best able to satisfy it, drive away the young suitors. After these are provided for, those next in courage and desire succeed them in the field of love, and obtain partners suited to their merit. The youngest and weakest come last, as their inclinations are latest in appearing. There are, however, many of both sexes that remain unprovided for, from not meeting with each other. Whether each species confines itself to its own limits, or intermixes with others, naturalists have not fully ascertained. Addison, in a beautiful Latin ode, celebrates the chastity of their manners in this respect, and denies that they ever admit the caress of a different tribe. Buffon, on the contrary, and with some appearance of justice, suspects them of incontinency. He supposes, that the infinite varieties of the smaller birds arise from the mixture of different species. Of the eagle, the ostrich, and cassowary, there are but few varieties; and no art will make one species procreate with another. New species, however, have been produced among the passerine tribes, from the union of the bulfinch and canary; from the linnet and the lark. Nor are these bastard tribes barren, like the mules; but capable of procreation, and adding to the variety of this order. There are many different kinds whose shape and manners so nearly resemble each other, as lead us to believe such combinations are formed by nature herself in cases of necessity. What happens in domestication to the cock, the turkey, the pheasant, and the common hen, may happen also in a state of freedom. We know not what passes in the depths of the woods; nor by what secret, but illicit joys, nature may console those birds that are deprived of an associate of their own kind.

The strong billed small birds feed upon grain. They live upon the property of the husbandman, for which they repay him with their songs. They are not, however, without their use; for they often transport seeds from one district to another, and thus disseminate and vary the vegetable productions of the earth. The slender billed tribes feed mostly upon insects or worms, and are exceedingly useful in destroying part of those superfluous beings with which the atmosphere and the surface of the earth teems, often to the ruin of seeds and tender plants. Their voice is supposed to be still more soft and delicate than that of the other kinds. Even the granivorous birds of this class, while young, live upon insects. During the three first days after their exclusion from the shell they require little or no food. The parents, however, soon perceive by their loud and plaintive accents and by their gaping, that they feel approaches of hunger; and they are eager to gratify their wants by a plentiful supply. "In the absence of the parents they continue to lie close together, and cherish each other by their mutual warmth. During this interval also they preserve a perfect silence, uttering not the slightest note till the mother returns. Her arrival is always announced by a chirrup, which they perfectly understand, and which they answer all together, each petitioning for its portion. The parent distributes a supply to each by turns, cautiously avoiding to gorge them, by giving them often, and but little at a time. The wren will in this manner feed seventeen or eighteen young, although perfectly in the dark, without passing over one of them. A few days after they are fully fledged, and led out by their parents, during which they are taught to pick their food, and to fly, they become totally independent of these admonitory aids.

In this order of birds Linnéus has placed the *colomba*, or pigeon tribes. There are, however, peculiarities in the character and habits of the celumbines which have induced many naturalists to remove them from the passerines, and to form a distinct order of themselves.

The pigeon was brought into a domestic state at a very early period, and seems to have been known to the Greeks from the time of Aristotle. That philosopher, however, appears to have been unacquainted with those immense varieties, which, in a long succession of ages, nature, aided by the art of man, has since produced. He mentions only four species, which, from their producing from ten to twelve flights in a year, must have been of the domestic kinds: for it is a law, that all animals become more productive in proportion to their accommodation, and the abundance of food with which they are supplied. The common pigeon, which is so prolific, when aided by the foresight and bounty of man, seldom, when wild, produces above one, and never more than two pairs in a year.

The varieties of the domestic pigeon, which, in the time of the Grecian naturalist, were few in number, increased greatly among the Romans; among whom, changing and improving the breed was held an object of such importance, that they erected high towers upon the tops of their houses for this purpose, and marked the genealogy of their pigeons as carefully as we do that of our race-horses. Pliny particularly mentions a generous breed in Campania, a pair of which, whose ancestry was well authenticated, brought a very high price. The same attention to the breed of pigeons has continued in some of the modern nations of Europe. By singling out, every season, the most beautiful and remarkable of the produce of the dove-house, bringing them into a more close captivity, and pairing again the most singular of their new progeny, varieties, almost infinite, have been produced. Adepts in this business pretend that they can be bred to a feather; and, according to their different properties, they have endeavoured to distinguish them by the various names of tumblers, carriers, jacobines, croppers, runts, turbits, and by a long list of other appellations, intelligible only to themselves. To give a detail of all the varieties of the domestic pigeon would prove less a history of nature than of human art. Of the forty-four different species, independent of varieties, which Brisson has described, it will be sufficient in the present plan to notice the stock-dove, the ringdove, and the turtle.

These, as indeed all the columbine tribes, are distinguished by being monogamous. The male and female continue faithful and attached to each other, not only for the season, but frequently during life. The fatigues of nestling, incubation, and feeding the young, are shared equally by both parents. The season of courtship is announced by a plaintive and cooing note, peculiar to the order. The male, while paying his addresses, inflates or swells his throat and breast. The female lays only two eggs, in the hatching of which she is regularly relieved, for a few hours every day, by her mate. When she delays to return, the male goes in quest of her, and beats her back to the nest; and, when the male neglects his duty, he is, in his turn, obliged to submit to the same severe chastisement from the female. After the young are protruded, they receive no meat from either parent for three days: during that period warmth is all they require; and the clutching them is a task which the female takes entirely upon herself, never stirring from them, except a few minutes to collect her food.

The manner in which this kind of birds nourish their young sufficiently distinguishes them from every other class of the feathered kind. They are granivorous, and the grains with which they feed their young are treasured up, for some time, in their crops, where, by being moistened, and made more easy to be digested, they are rendered fit for the stomach. On their return to the nest, the young demand their food with importunity, when the parents, in succession, eject it from the crop into their mouths.

The crop of the pigeon, in order to fit it for this singular operation, is of a peculiar structure. It is larger than that of any other bird of the same size, and communicates with the lungs in such a manner that it can be inflated at pleasure: the variety called croppers have a power of distending it, till it becomes nearly equal in size to the rest of the body. When the grain, by means of the heat, and the milky fluid secreted in the stomach, begins to swell and macerate, the crop is proportionally dilated: even yet, however, the bird has the power of distending it farther, and of taking in air; and, on the expulsion of this new air by the mouth, the food is forced out along with it. The nestlings are ready, open-mouthed, to receive this tribute of parental affection; and, as often as they perceive the old ones returning from an excursion they announce their wants with the most restless and craving importunity.

The domestic pigeon, and all its varieties, derive their origin from the stockdove, which, in its wild state, is very rarely seen in this country. It is, in most parts of Europe, a bird of passage, which remains for a few months, and breeds, and then retires, as is conjectured, to Africa, to pass the winter. In its natural state it is of a deep bluish ash-colour: the breast dashed with a fine changeable green and purple: the wings marked with two black bars, one towards their insertion, and the other nearer the top: the back is white, and the tail barred near the end with black. In this state it builds in the holes of trees; from which it ventures to rocks and old walls; whence, by kind treatment, it is allured to the dovehouse; and, by close confinement, becomes, at last, familiarized to human society. In proportion as the pigeon loses its independence, it acquires greater degrees of fecundity. The stockdove, in his native woods, probably seldom produces twice in the year. During the whole of the winter months, self-preservation, and not the rearing of a posterity, must require all his care, and employ every exertion. On the other hand, when properly domesticated, and fully fed, so great is the fertility of the same bird, that fifteen thousand, in the space of four years, may be produced from a single pair.

The woodpigeon, the rockpigeon, and the dovehousepigeon, are but different shades of the stockdove, in different degrees of subordination to man. The housepigeon is the same bird in its last and most perfect state of domestication, where it receives every tint and variety of hue that can be communicated to this race by human invention. So great is the multiplying of varieties, so numerous has been the mixture of different races, that a volume of description, or painting, would not suffice to represent them all.

Of all the varieties of the domestic pigeon, however, the carrier, or messenger, is the most remarkable for attachment to his native place, and affection for his female. From this peculiarity it has been employed at Cairo, and in many parts of the east, as a carrier; an office for which it is well qualified, since it is capable of travelling three times faster than the fleetest horse. At Scandaroon this messenger was once employed to convey the speediest intelligence to the merchants of Aleppo of the arrival of ships; for which purpose they fastened a letter under its wing, and, after having fed it, despatched it to its native country. No sooner does the bird find itself at liberty than it raises itself to an amazing height in the air, and continues to direct its course, in an unerring line, and at the astonishing velocity of forty miles in an hour and a half! In our own country these aerial messengers have been employed for a very singular purpose; having been let fly at Tyburn when the fatal cart was drawn away, to notify, to distant friends, the departure of the unhappy criminal. The Egyptians are said to have improved upon this idea, and to have had relays of messengers to relieve each other; by which means, intelligence of any kind could be conveyed, in a few hours, throughout the whole kingdom.

It is pretended that great use was made, in ancient times, of the carrier-pigeon, in opening a correspondence between besieged towns, and the armies that were to relieve them. Such was the intercourse carried on between Brutus and Hirtius at Modena, in spite of every attempt of the besieger, Anthony, to intercept their couriers. In the time of the crusades, when the most romantic enterprises were carried on in the most romantic manner, we read of many important articles of intelligence having been conveyed by the pigeon. Anacreon, however, mentions another kind of warfare, and other sieges, in which, in his time, this gentle, but uncertain courier was probably oftener employed, and that was, in carrying love letters from gallants to their mistresses. The bird seems indeed much better qualified for the service of Cupid than of Mars: and in his beautiful little ode, addressed to his pigeon, the Teian poet pays him many compliments on his affection and services.

There are many varieties of the domestic pigeon, or stockdove from which it is derived, in foreign parts; and especially through all the warm and temperate regions of America: many are also seen in the East Indies, and in most of the islands of the Indian Ocean. At Amboyna there are two species, or varieties, quite green. Sir Hanse Sloan has described a variety found in Jamaica, purple on the upper part of the body, and white below.

The ring-dove, like the stockdove, is a bird of passage; appearing in the spring, and breeding twice during the summer, after which among ourselves it takes its departure for warmer climes. It builds not in the holes but on the branches of trees, and uses, on this occasion, only a few dry sticks. Many unsuccessful attempts have been made, in modern times, to domesticate this species. They have been hatched below a tame pigeon; they have been kept, when young, continually in the society of man; but, after becoming capable of flight, they have always availed themselves of the earliest opportunity of regaining their natural haunts in the woods. Ringdoves are not numerous in any country, though generally spread over the world. Their flesh, which, when young, is excellent, holds out a strong temptation to destroy them. They are much larger than the common pigeon: the length at full size being eighteen inches, and the breadth thirty. The head, back, and coverts of the wing, are of a bluish ash-colour. The breast and the lower part of the neck are of the same hue, with a mixture of red. The hind part of the neck is marked with a semicircular line of white; and the feathers above and below it are of a changeable and glossy colour. The belly is of a dirty white; and the quill-feathers are dusky. Buffon classes with the ringdove the crowned pigeons of the East Indies, which are of the size of a Turkey. Several of them have been brought over alive to France and Holland; but they have never been known to lay their eggs in either country.

There are five or six foreign birds that have been reckoned congenerous with the ringdove: and there are also many others of so near a resemblance that they can only be deemed varieties of the European species. Such are the ringdove of the Moluccas; the triangular spotted pigeon of Edwards, which inhabits Guinea; and the pigeon of Jamaica, with a brown annulated tail. The founingo of Madagascar, described by Buffon, seems also to be of this race, although of a smaller size, and of a blue colour.

The turtle is exceedingly shy and timid, breeding generally in the heart of large woods. It migrates in autumn, like the other columbines when wild. This dove is distinguished by a beautiful circle of crimson, surrounding its eye-lids. There is a black spot on each side of the neck, the feathers of which are tipped with white. The back is ash-coloured, bordered with brown: the scapulars of a reddish brown, spotted with black. The belly is white; the sides, and inner coverts of the wing, bluish.

Turtledoves constantly assemble in flocks; they arrive, depart, and fly in company. In the short space of four or six months, which they remain here, they pair, nestle, hatch, and rear their young, which are able to accompany them at their departure.

For these purposes they commonly reside in some thick and gloomy wood, far removed from the haunts of men. They are spread over almost the whole of the old continent, and over the new, as far as the islands situated in the South Sea; where they were so little acquainted with the human race, that they perched upon the shoulders of the sailors, who first visited these regions.

The turtles, as well as the other pigeons, are subject to great variety. They are capable of domestication, and can be made to unite with the domestic pigeon; from which illegitimate union there arises a race of mules, still capable of producing new varieties. This union is probably never formed in a state of nature, but must be accomplished by man, by depriving them of their proper male or female, and availing himself of their excessive ardour.

The turtles are still more amorous than the common pigeon; the male of which last contents himself with turning round, and gracefully cooing before his female; whereas the male turtle, whether in a wild or domestic state, begins his courtship by saluting the female, and falling down on his breast frequently before her, till his bill touch the branch on which he is perched. His salutations are accompanied with tender sighs; to which the female, for a while, appears insensible. Soon, however, an inward emotion begins to be expressed, by certain soft and plaintive accents which escape from her. When once she has felt the first access of the flame, she soon burns with the same ardour as the male, and even exceeds him; for she pursues him, loading him with repeated caresses, and provoking him to love, till she begin to lay. At that period she finds herself obliged to devote to the care of her family the time which she wholly lavished, till now, on these amorous pursuits.

In spite of the high reputation these creatures have obtained as emblems of sincere affection, there are well attested instances of their violating the fidelity and attachment which obtain between true lovers. Even when neither constrained nor corrupted by domestication, a female has been seen making different suitors happy on the same branch.

The title Amphibia, applied to the third class of animals in the Linnéan arrangement, is by no means unexceptionable: for while the power of living with equal facility both in land and water is in no respect granted to all the tribes that compose it, it is a power which belongs in a much greater degree to many tribes which are distributed through other classes instead. Thus, among fishes, one species of the perch, several of the exocetus, or flying fish, and still more of the eel, are capable of living both in and out of the water; while the same double faculty is allotted still more largely to different tribes in the class of insects, and in a still greater degree to that of worms.

To a certain extent, however, the major part of the animals called amphibious are possessed of this duplicate power; and the peculiar structure of their organs, and the faculty they possess of suspending respiration at pleasure, not only enable them to support a change of element without injury, but also to endure an abstinence which would prove fatal to the higher classes of animals.

The heart of amphibials has been generally asserted to be unilocular, or, in other words, furnished with only a single ventricle or cavity; and the assertion has been assented to by the most eminent anatomists and physiologists, as Boerhaave, Haller, &c. The lungs of these animals also differ as widely in their appearance from those of other animals as their heart: consisting in general of a pair of large bladders or membranaceous receptacles, parted in the different species, into more or fewer cancelli or subdivisions, among which are beautifully distributed the pulmonary blood-vessels, which bear but a small proportion to the vesicular part through which they ramify: while in the lungs of the mammals, so great is the proportion of the blood-vessels, and so very small are the vesicles, or air-cells, that the lungs have a fleshy rather than a membranaceous appearance. In amphibials, therefore, the vesicular system may be said greatly to prevail over the vascular, and in mammals the vascular system to prevail over the vesicular.

Even here, however, we meet with a great diversity in the structure of the different kinds; and no small contrariety of opinion among physiologists themselves concerning the general character of the organs immediately before us. The most perfect of the amphibials is the tortoise; yet the French academicians of the seventeenth century characterise this animal as possessing *three* ventricles in the heart instead of one; and Linnéus, in his *Systema Naturæ*, acquiesces in this assertion: while among the physiologists of the present day it is esteemed more correct to say that the heart of the class *amphibia* is, for the most part, double, or furnished with two ventricles, but possessing a free or immediate communication with each other.

In reality, however, there is no class so diversely constituted, whether in regard to the heart or the respiratory organ: for the genus locerta alone, the most numerous of the whole, affords us instances of almost every variety of configuration; some of the species having a heart and respiratory organ more simple than those of many of the worm-tribes: while the *Siren* is possessed of both lungs and gills, and has hence puzzled the naturalists in every age as to its proper situation, some having placed it among the fishes, and others among the class before us. Linnéus first fixed it in the order of amphibious reptiles; but being dissatisfied with this position, yet not knowing where to arrange it better, he created a new order in the amphibial class a short time before his decease, for the express purpose of receiving it, to which he gave the name of *meantes*. We may also observe, that this class equally differs in its external powers as in its internal organs; for some of them walk, some fly, others swim, and a great number can only crawl.

The class of Pisces, or *fishes*, which in the preceding arrangement is subdivided into six orders, has, by several naturalists, been limited to two: fishes with an osseous or spinous skeleton; and fishes with a cartilaginous skeleton; the former including the first four orders of Linnéus, and the latter the last two.

The first peculiarity that strikes us, with regard to the fishes of the spinous order, is the extent of their numbers. Not only are the individuals of each family more numerous, but the variety of the kinds is also far greater. Upwards of seven hundred different species of spinous fishes are already known and described; while the whales and the cartilaginous fishes when taken together hardly amount to a fifth of that number. The former are in general inferior in size; and it is conformable to a law, which obtains in every department of the animal kingdom, that the smaller the productions of nature are, the more numerous and diversified in form does she yield them. A very valuable purpose in the economy of Providence is gained by this constitution of the animal kingdom; for, since the smaller tribes are in general destined to become the prey of the larger, an adequate provision is made for the supply of every kind; none entirely perishes through want; none is ultimately extirpated by depredation.

It is by the numbers, therefore, of the spinous fishes that the other orders are preserved, and their own perpetuated. In them generation is formed, not by producing a living animal, or by hatching a distinct egg, but by spawning innumerable ova, that are quickened into life by the heat of the sun, and are destined to supply the annual waste of millions. Hence the powers of fecundity in this division exceed belief, and in a short space defy calculation. A single herring, if suffered to multiply unmolested, and undiminished for twenty years, would shew a progeny greater in bulk than the globe itself. It is owing to this exuberant fertility that the herring, the pilchard, and some others, are obliged to migrate annually from the arctic regions, in shoals of such vast extent, that for miles they are seen to darken the surface of the water.

But the amazing propagation of fishes, which we witness along our coasts and rivers, bears no proportion to the vast quantities that swarm in the warmer latitudes of the Indian ocean. The inhabitants of some of the islands there are under no necessity of providing instruments for fishing: as fish tribes approach the shore they are found in great numbers, in the plashes, where the water remains after the ebbing of the tide. In some places where these swamps are dried up by the sun they are left in such shoals, that they communicate by their putrefaction a noxious and unhealthy influence to the atmosphere.

Happily, however, for the purity of the ocean, and the health of those beings which it supports in life, the waste of these fishes is nearly proportioned to their fecundity; and the balance of nature is exactly preserved. The shark, the porpoise, and the cod, we ought therefore to consider not so much in the light of plunderers and rivals as that of benefactors to mankind. Without their exertions the sea would soon be overcharged with the burthen of its own inhabitants; and that element, which at present distributes health and plenty to the shore, would in a short time load it with putrefaction.

The generation and growth of fishes, and particularly of the oviparous, are involved in great obscurity. Many of the cartilaginous kinds, as the shark, and some of the skates, have visible sexual organs; and some of them produce viviparously: among the spinous tribes it is generally conceived that impregnation is performed without the body of the female, by the male ejecting the smilt, and mingling it with her ova. Something, however, like pairing and copulation has been observed among fishes kept in ponds. At a certain period the sexes are seen struggling together among the grass, at the brink of the water. It is then that the scales of some grow rough, and lose their lustre; that other tribes become thin, lose their appetite, and appear flabby.

It has not yet been sufficiently ascertained whether all the fishes of this division, when they first attain to animation, and burst from the egg, leave it perfect animals, or in a tadpole state, as is the case with the frogs, and many of the lizards. The young frog is first ushered into life without legs, with an enormous head, and slender tail; but the tail soon after drops off, the head diminishes, the legs appear, and the tadpole is metamorphosed into the quadruped, when it changes its element, as well as its form. Various species of the lizard also, in like manner excluded from the shell without legs, acquire them by degrees, and after some time leave the serpent shape. Some fishes, it is probable, in like manner suffer a change, though too imperceptible to attract the notice of the observer. In support of this idea, it is well known, that during the month of July there appear in the Thames innumerable shoals of a small fish, called white bait, that are universally allowed to be the young of some species abounding there. They have no roe; a circumstance which proves them to be young: they resemble no other fish exactly; from which the conclusion is that they undergo a change before they arrive at maturity.

The general character by which naturalists distinguish the spinous fishes from the cartilaginous is that bony operculum, which, in this order, universally covers the gills on each side. By these coverings the gills are alternately opened and shut; and the spinous fishes breathe by these organs alone. Hence, as these animals partake less of the conformation of quadrupeds than either the cartilaginous or the cetaceous tribes, they can in general remain only a shorter time out of their proper element. When taken from the water they testify their sufferings by panting more violently, and at closer intervals; the thin air furnishes not their gills with proper play, and in a few minutes they expire.

But the spinous tribes are not all equally incapable of supporting life in the open air. The eel will live several hours out of water; and the carp has been known to be fattened in a damp cellar. The manner in which this process is conducted is by putting the animal in a net, wrapt up in wet moss, the mouth only disengaged, for the convenience of feeding: the nourishment which agrees best with it is white bread and milk; and upon this food it will fatten more rapidly, and become better flavoured than when fed in the pond. It is necessary, however, that the net be dipped frequently in water, and kept hanging in a damp vault.

This *spinous* division constitute the only animals that, in the opinion of Linnéus, ought to be regarded as proper fishes; for the two last orders, as they are usually now arranged, and which we are at present considering under the title of *cartilaginous* fishes, were regarded by him as proper amphibials, and under the first editions of the Linnéan system were regularly entered in the amphibial class, and constituted a distinct order, to which the author of the arrangement gave the name of *nantes*. There is, in truth, a peculiarity in the respiratory organs of the cartilaginous fishes which gives them the appearance of lungs, and which were regarded as a mixture of lungs and gills by Linnéus, on which account it was that he placed them as we have now stated. The more accurate researches of other zootomists, however, have since proved that these supposed lungs are no other than a particular kind of vesicular processes, which the animal has the power of occasionally inflating in order to render itself specifically lighter, and to ascend at pleasure with the greater facility.

The apertures by which this division of fishes breathe are placed always near the head, but have not uniformly the same position: in some they are placed beneath, as in the rays, and other flat fishes; in others on the sides, as among the shark tribe; and among a third kind they are situated on the top of the head, as exemplified by the pipe fish.

From these foramina there are two bending cylindrical ducts, that run to the lungs, and are supposed to convey the air that gives their organs their proper play; the heart, however, has but one valve; and hence their blood does not perform that double circulation which obtain among the cetaceous kinds.

Another striking character by which this division of fishes is distinguished is, that their flesh is supported by cartilages instead of by bones. In the cetaceous tribes we have seen that the bones were hard, and filled with marrow, resembling those of quadrupeds; while these parts in the spinous fishes are small, slender, and pointed, resembling thorns, and generally solid throughout. The size of other animals increases with their age, and stops at a certain point; but from the pliancy of the bones in this tribe they seem to have no bounds placed to their dimensions, and it is said by some physiologists that they grow larger every day till they die.

A third general character of these fishes arises from their manner of generation; some of them are oviparous, while the greater part produce living young. In those that are viviparous the progeny is generally, though not in every instance, excluded from an egg hatched within the body of the female; this egg consists of two parts, a white and red, as in those of birds; and instead of a shell, it is lodged in a case formed of a thick tough substance, resembling a horn that has been softened in boiling water. The fishes of this description are called *ovoviviparous*.

The oviparous fishes produce their young nearly in the same manner; in these, as well as in the oviviviparous kinds, the egg is hatched for some time in the belly of the female, but before the fetus is disengaged from it is excluded from the womb, and left till time and the warmth of the sun bring the inclosed offspring to maturity. Both differ remarkably from the whales and the quadrupeds, whose eggs start from the ovarium, and enter the uterus at or shortly after the time of conception, where they remain only a short time, when they leave that state, and are formed into a complete fetus.

There are other discriminating characters belonging to this division, less discernible indeed, but such as mark a difference between them and the adjoining tribes. The spinous fishes have no external apparatus for hearing; it is probable, however, that the cartilaginous are furnished, though imperfectly, with an organ of this kind; since, upon each side, near the eyes, there is an aperture which opens into the mouth, the supposed use of which is partly to convey the water into the mouth, which is expelled through the gills, and partly to convey sounds to the tympanum. In this respect, therefore, the cartilaginous fishes may be deemed a more accomplished race than any of their companions of the deep.

The males of this race copulate with their females, and the sexual organs are easily distinguishable: and whether it be that these animals possess more warmth of constitution, or a greater capacity of bringing their offspring to maturity, they generally choose colder seasons and situations for producing their young than other fishes; many of them propagate in the midst of winter, and far from the shore.

The cartilaginous fishes, though not so remarkable either for fatness or size, are in general more voracious than any of the tribes we have already reviewed; their livers are indeed fat, and are sometimes employed for the production of oil; it is not, however, from them that man derives either his most pleasant or salubrious food; they are impure and immoderate feeders, and their flesh savours of impurity. Of a considerable portion of them the mouth is placed below the head; a contrivance of nature, for which an old writer assigns a curious reason: their snout, says he, is too small to be divided; and their voracity is so keen, that their own life requires that it should not be allowed a ready or complete gratification.

In consequence of this conformation of the mouth, a great part of the cartilaginous fishes are obliged to turn their back downwards in laying hold of their prey; a circumstance that requires time, and affords an opportunity to the smaller fishes to make their escape. They devour every kind of fish or flesh, and to their extraordinary voracity, had nature granted the power of easily apprehending their food, the other kinds must long ago have been altogether extirpated from their gluttony.

Insects, as to their structure, were but very vaguely known to the ancients: and the origin of most of them was referred to spontaneous generation from the putrefaction of animal or vegetable substances. Even in the present day we labour under considerable ignorance concerning them; are doubtful as to the circulatory and respiratory organs of many tribes, and know not how, with perfect satisfaction, to class various others. Cuvier seems to doubt that proper insects are destitute of a heart; and he has hence removed the cancer and monoculus tribes, which evidently possess this organ, from the class of insects, and has made a new division of them, under the title of *Crustacea*; for which see the article of this name. Lamarck, for the same reason, has proposed to exclude the spider, whose heart and circulation of blood are distinctly visible; but the external conformation of the spider must preclude it from associating with the crustaceous division: the cimex or bug, and the cicada or grasshopper, have equal pretensions to a circulatory system; and hence there is no knowing where to limit the innovation when it is once allowed an entrance.

The first state in which the generality of insects appear is that of an egg: from this is hatched the animal in its second state, which, as applying to the moth and butterfly tribes, is denominated a *caterpillar*; to the fly and bee tribes a *maggot*; and as applying to almost all the rest a *larve*. The form of the larve differs extremely in different kinds. In the beetle it is of a thick, heavy shape, with the body of a rounding and bulgy appearance at the hind part. In the locust or grasshopper tribe, and some others of the same order, it does not much differ from the common insect, except in not being furnished with wings. In the fly and bee tribes, and a few others, it is of an oval oblong form without any feet. In the dragon-fly, water-beetles and several more, it is of a very singular form, and differs farther from the complete insect than in any others, except those of the moth and butterfly.—The pupe, or chrysalis, the state at which the insect next arrives, differs in the different kinds almost as much as the larve. In most of the beetle tribes it is furnished with short legs, capable of some degree of motion, though very rarely exerted. In the butterfly tribe it is perfectly destitute of all appearance of limbs, and has no other motion than a mere lateral bending or writhing when touched. In the locust tribe it differs but very little from the perfect insect, except in not having the wings complete. In most of the fly tribe it is perfectly oval, without any apparent motion or distinction of parts. In the bees, and other insects of a similar cast, it is less shapeless than in that of the flies, exhibiting the faint or imperfect appearance of the limbs. In the libellulæ, or dragon-flies, it is loco-motive, as in the locust tribe, but differs most widely from the appearance of the complete insect, and may be numbered among the most singular of the whole. From the pupe, chrysalis, or aurelia, emerges at length the complete insect in its perfect or ultimate form, from which it can never after change, nor receive any further increase of growth. This last or perfect state of an insect is, in the Linnéan language, the *imago*.

We have entered so much at large into the general habits and economy of insects under the article Entomology, to which we refer our readers, that it is not necessary for us to expatiate on the subject in the present place. There is nevertheless one insect universally acknowledged to be of a very curious character, (we mean the ant) whose powers and mode of life have been given so much at length, and with so much interest and novelty of observation, by M. Huber, (the son of the entomologist to whom we are indebted for our description of the Bee,) since the above article was written, that it would be unpardonable in us to close the present work without offering an abstract of this very elaborate and amusing essay, which he has entitled

"Recherches sur les Mœurs des Fourmis Indigenès.

The industry and activity of ants had attracted much notice from the ancients; but in the mixture of truth and fable which compose the accounts of Pliny, and of Aristotle, we find the errors greatly preponderating; and even the writings of modern naturalists contain a multitude of vague assertions, unsupported by observation. By some their sagacity has been greatly exaggerated, and by others as unwarrantably depreciated. Leuwenhoek rectified many of the errors, and was the first who accurately distinguished the larves from the eggs. Swammerdam followed them, with still greater minuteness, in all their transformations; and Linnéus made us acquainted with several curious particulars respecting these insects in the state of fly, which we shall afterwards have occasion to notice. The labours of Geoffroy, De Geer, Bonnet and Latreille, have added numerous facts on the economy of ants, but still left many important questions undecided, to which the more successful efforts of Mr. Huber have now given a satisfactory solution. In his account of the external characters of the species, which forms the introduction to his work, he avails himself principally of the descriptions and method of Latreille. He agrees with him in ascribing to them a tongue, an organ which Fabricius had supposed them not possessed of. This tongue is spoon-shaped; and by means of it, the insect, according to M. Huber, is enabled to lap up fluids with the greatest facility. He has discovered no less than twenty-three species, indigenous in Switzerland; but the particulars he has given us relate to a few of these only.

Ants present us with many striking analogies with bees; as in them we may in each species distinguish three modifications of sex, namely, the *males*, the *females*, and the *neuters* or *labourers;* the latter being, in respect to sex, in the same condition as the working bees, that is, they are females in whom the generative organs are not developed, and who of course are barren. In each hive of bees, however, there is but one queen; whereas a great number of queens, or female ants, are met with, living in the utmost harmony in the same nest. It appears, that any of the larves of the labouring class of bees may be raised to the rank of queen, that is, may acquire a development of organs by a particular mode of feeding. Whether the same circumstance obtains, with respect to the female ant, has not yet been ascertained, and is a question which Mr. Huber's future researches will probably enable him to determine. The various toils which contribute to the welfare of the republic are confided, in both communities, to the labourers, who act as the architects of the city, as the soldiers of the garrison, and as the nurses and guardians of the rising generation; while the other classes have no other duties to perform than those of furnishing recruits to the colony.

The different species of ants, like the nations of our own species, are distinguished from each other by great diversities of manners. This is strikingly shown in the variety of modes in which they construct their habitations. Some employ merely earth as the material; some collect for the same purpose fragments of leaves, of bark, or of straw; others use nothing but finely pulverised portions of decayed wood. The solid substance of trees is excavated by another species into numerous apartments, having regular communications with one another. Various other modifications may be observed in the architecture of the different species. The most perfect specimens of workmanship are generally exhibited by the smaller ants. The brown ant (*fourmi brune*) is particularly remarkable among the masonic tribes. Their nests are formed of parallel or concentric stories, each four or five lines in height; the partitions being about half a line in thickness, and built of such fine materials that the interior appears perfectly smooth. On examining each of these stories, we discover chambers of different sizes, having long galleries of communication. The ceilings of the larger spaces are supported by small pillars, sometimes by slender walls, and in other cases by arches. Some cells have but a single entrance; others have passages, which open from the story underneath. In other parts, still larger central spaces, or halls, are met with, in which a great number of passages terminate, like the streets and avenues to a market-place. The whole nest often contains twenty of these stories, above the level of the ground, and at least as many below it. The use of this numerous series of rooms will appear in the sequel. The surface of the nest is covered with a thicker wall, and has several doors admitting, in the day-time, free ingress and egress. This species of ant is unable to bear much heat. During the day, therefore, and particularly when the sun shines, their doors are closed; and they either keep at home, or venture out only through the subterraneous passages. When the dew has given freshness to the nest, and softened the earthy materials on its surface, they begin to make their appearance above ground. On the first shower of rain that occurs the whole swarm are apprised of it, and immediately resume their architectural labours. While some are engaged in removing the earth below, others are employed in building an additional story on the top; the masons making use of the materials furnished by the miners. The plan of the cells and partitions is first traced in relief on the walls, which are seen gradually to arise, leaving empty spaces between them. The beginnings of pillar indicate the situation of the future halls; and the rising partitions show the form of the intended passages. Upon the plan thus traced, they continue building, till they have arrived at a sufficient elevation. Masses of moistened earth are then applied at right angles to the tops of the walls, on each side, and continued in a horizontal direction till they meet in the middle. The ceilings of the larger chambers are completed in the same manner; the workers beginning from the angles of the walls, and from the tops of the pillars which have been raised in the centre. The largest of these chambers, which might be compared to the town-hall, and is frequently more than two inches in diameter, is completed with apparently as muchease as the rest. This busy crowd of masons arriving in every direction, laden with materials for the building, hastening to avail themselves of the rain to carry on their work, and yet observing the most perfect order in their operations, must present the most interesting and amusing spectacle. They raise a single story in about seven or eight hours, forming a general roof as a covering to the whole; and they go on, adding other stories, so long as the rain affords them the facility of moulding the materials. When the rain ceases, and is succeeded by a drying wind, before they have completed their work, the earth ceasing to adhere together, and crumbling into powder, frustrates all their labours; as soon as they find this to be the case, they, with one accord, set about destroying the cells which they had begun, but had not been able to cover in, and distribute the materials over the upper story of what they had completed. Under these circumstances Mr. Huber succeeded in getting them to resume their task by means of an artificial shower.

In tracing the design of the cells and galleries, each ant appears to follow its own fancy. A want of accordance must therefore frequently take place at the point where their works join: but they never appear to be embarrassed by any difficulties of this kind. An instance is related, in which two opposite walls were made of such different elevations, that the ceiling of the one, if continued, would not have reached above half way of the height of the other. An experienced ant arriving at the spot seemed struck with the defect, and immediately destroyed the lower ceiling, built up the wall to the proper height, and formed a new ceiling with the materials of the former.

Nature, in providing the male and female ants with wings, must evidently have designed them for migration to distant abodes, where they might become the founders of new colonies. Arrived at the period of maturity, and furnished with perfect instruments of flight, they wait only till the warmth of the atmosphere is sufficiently genial; and do not quit their nests till the temperature has risen to above 67° of Fahrenheit. Busy swarms of these winged insects are then seen to issue from the nest, and to cover the neighbouring plants, expanding their wings, which reflect the sun's rays in a thousand brilliant colours. They are escorted in all their steps by the labourers, who appear to watch them with peculiar solicitude, frequently offering them food, and caressing them with their antennæ. At length they leave their attendants, and commence their flight, few being destined ever to return to the spot which gave them birth. The act of fecundation is generally performed during their flight. The males, having fulfilled the purposes of nature, are now useless members of the society; it does not, however, appear that they are ever massacred by the labourers, as is the case with drones; but they are left to perish for want of sustenance; being unprovided with the means of procuring it for themselves, and being separated from those by whose bounty they had hitherto been fed. The females, when impregnated, seek proper habitations, where, as will afterwards appear, they lay the foundations of new republics.

All the impregnated females however are not lost, in this way, to the parent state: many are detained by the labourers before they can take their flight, and a few are impregnated in the nest itself. The labourers are every where lying in wait for them, and forcibly seize them wherever they are to be found; they immediately deprive them of their wings, and drag them to the nest. Here they are kept close prisoners for several days: their keepers watching them with the greatest assiduity, but carefully supplying them with nourishment, and conveying them to situations where the temperature is the most grateful.

The eggs, when first deposited, are very small, white, opaque, and of a cylindrical form. The labourers, to whom the care of hatching them is confided, never quit them for a moment, but keep them in a state of moisture, by licking them continually with their tongues, or passing them through their mouths. Mr. Huber has clearly proved that the eggs acquire a considerable increase of size during this period; and that at length they become nearly transparent, and much distended, and resemble in form the larve that is about to be excluded. A similar growth had already been noticed by Reaumur in the eggs of the gall insect, and by Vallisneri in those of some species of fly. At the end of a fortnight the larve comes forth; it is then perfectly transparent, consists only of a head and rings, without even the rudiments of feet or antennæ. In this state it is likewise completely dependent on the labourers for its support: their food is altogether liquid; and their nurses allow them to take it out of their mouths, without its appearing to have undergone any preparation. The following passage will give some idea of the care with which they are reared.

In their passage to the state of perfect insects they still require the fostering care of their guardians, and would be unable, without their help, to extricate themselves from their enclosure. In these efforts for their deliverance the labourers display surprising patience and ingenuity; and a lively picture is given of the scene that the interior of the nest presents to the spectator, while the whole society of labourers are actively employed in emancipating the young from their fetters, and anticipating all their wants till they are able to provide for themselves. They still watch and follow them for many days, teaching them the ways and labyrinths of their habitation, and supplying them abundantly with food. They assist the males and females in expanding their wings, which would otherwise remain folded; and, whenever they wander to too great a distance, conduct them back in safety: and they continue these offices till the season of their migration is arrived.

The fecundated females that escape detention, and quit for ever after the paternal roof, no sooner alight upon a spot where any loose earth is to be met with, than they set about forming a habitation. The first step they take is to cut off their own wings, for which they have no longer any use: and it is extremely curious that they never perform this operation till they find a situation that promises to afford them an asylum. Having now no labourers to work for them, they perform all the household duties themselves. Like the mothers of other animals, they are indefatigable in their attention to their offspring. Thus the same individual, which, when surrounded at home by those who minister to all her wants, and relieve her from exertion, would have reposed in indolence, and been quite careless of her young, acquires new powers from necessity, and fulfils the intention of nature in the formation of new republics. It is impossible to produce a more striking example of variation in the character of animals produced by a change of external circumstances.

Our attention shall next be directed to the way in which ants procure the means of subsistence; and the views that have been opened to us by M. Huber on this subject are among the most curious of any he has disclosed. It is here, indeed, that the principal errors have been committed by those who have hitherto pretended to instruct us as to the economy of these insects. The collections of larvæ were long mistaken for magazines of corn and other food, which it was supposed the ants deposited in granaries, as provisions for winter consumption. But the truth is, that they are almost wholly carnivorous, and corn is certainly not an article on which they feed: they are total strangers to the art of hoarding, and none of their cells are constructed with this view. The ants, whose occupations confine them at home, depend for their food on the labourers, who forage for the whole society, and bring to the nest small insects, or portions of any animal substance that may fall in their way. When the game is too bulky to be easily transported, they fill themselves with nourishment, the greater part of which they disgorge on their return, for the benefit of those that are hungry. This nutricious fluid they retain unchanged for a considerable time, when prevented from imparting it to their companions.

The food which they appear to relish above all others is an exsudation from the bodies of several species of aphis, insects which abound on the plants in the vicinity of ant hills. This species of honey is absorbed with great avidity by the ants, and apparently without the least detriment to the insect that yields it. This fact had already been noticed by Boissier de Sauvages; but several very interesting particulars, as to the mode in which this excretion is procured, have been brought to light by M. Huber. He informs us, that the liquor is voluntarily given out by the aphis, when solicited to do so by the ant, who, for that purpose, strikes it gently, but repeatedly, with its antennas, using the same motions as it does when caressing its young. He is led to believe from observation, that the aphis retains this liquor for a longer time when the ants are not at hand to receive it. A single aphis is sufficient to supply in this way many ants with a plentiful meal. Even those among them who had acquired wings, and could therefore have easily escaped from the ants, if they had been so disposed, yielded this honey as freely as the others, and with as little appearance of fear or constraint.

Most insects become torpid when their temperature is much reduced. When it approaches the freezing point, they fall into a deep lethargy, and in that state require no food. Ants present a remarkable exception to this rule; for they are not benumbed till the thermometer has sunk to 27° of Fahrenheit, or five degrees below the freezing point. They therefore have need of a supply of provisions during the greatest part of the winter; although it is true that they are satisfied with much less than in summer. Their principal resource, however, under these circumstances, is still the same, namely, the honey of the aphis; which natural secretion appears to be expressly designed for the subsistence of ants. What confirms this view of the intentions of nature is, that the aphis becomes torpid at precisely the same temperature as the ant; a coincidence which it is hardly possible to attribute to mere chance. The winter haunts of the aphis, which are chiefly the roots of trees and shrubs, are well known to their pursuers; and when the cold is not excessive, they regularly go out to seek their accustomed supply from these insects. Some species of ants have even sufficient foresight to obviate the necessity of these journeys; they bring these animals to their own nests, where they lodge them near the vegetables on which they feed, while the domestic ants prevent them from stirring out, guarding them with great care, and defending them with as much zeal as they do their own young.

But their sagacity goes even much further than what is here related. They collect the eggs of the aphis, they superintend their hatching, continually moistening them with their tongue, and preserving them till the proper season for their exclusion, and in a word, bestow on them all the attention which they give to the eggs of their own species. When disturbed by an intruder, they carry off these eggs in great haste to a place of safety. Different species of aphis are to be found in the same nest: several kinds of gall insects and also of kermes serve the same purposes to the ants as the aphis, affording them in like manner juices possessed of nutritious qualities. All these live in perfect harmony with their masters, who so far from offering them any molestation, defend them with courage against the ants of other societies who might attempt to purloin them. That the ants have some notion of property in these insects would appear from their occasionally having establishments for these aphises at a distance from their city in fortified buildings which they construct for this purpose alone, in places where they are secure from invasion. Here the aphises are confined as cows in a dairy, to supply the wants of the metropolis.

Our author has been at great pains to ascertain by what means these insects are enabled to cooperate in the execution of these and other designs; a cooperation which is inexplicable, except on the supposition that they possess a species of language, by which the intentions of individuals are imparted to one another, and to the community at large. The particular means apparently used for this purpose are detailed in many parts of the work; and it might, we conceive, have been instructive to have brought together, in a distinct chapter, all the facts that bore upon this interesting question. It does not appear that ants are capable of emitting sounds so as to communicate at a distance. The sense of touch is with them the principal medium of conveying impressions to one another. Some of these impressions are communicated by the one striking its head against the corselet of the other; others by bringing their mandibles in contact. The former is the signal of danger; which is spread with astonishing quickness through the whole society. During the night as well as at other times, sentinels are stationed on the outside of their habitations, who on the approach of danger suddenly descend into the midst of the tribe, and spread the alarm on every side; the whole are soon apprised of the danger; and while the greater number rush forward to repel it, with every expression of displeasure and of rage, the rest, who are attending the eggs and larva, hasten with their charge to places of greater security. The males and females, on the other hand, on being warned of the approaching combat, in which they feel themselves incapable of bearing any active part, fly for shelter to the most retired places in the vicinity.

Bonnet had imagined, that in their journeys ants directed their course chiefly by the scent remaining in the track which they had before passed. But it appears that they have various other means of finding their way; and must depend principally on the senses of sight and of touch, aided by the memory of local circumstances. If they should meet with annoyance in their nest, or, from any other cause, find it inconvenient to remain, they endeavour to find some other spot to which they may remove; and, for this purpose, the labourers scatter themselves abroad, and reconnoitre in every direction. The ant who has the good fortune to discover a convenient situation returns immediately home, and by certain gestures acquaints her comrades with her success, and points out the direction of the place she has chosen. The migrations of the fallow ants (*fourmis fauves*) are conducted in a very singular manner. The guide carries another ant in her mouth, to the place to which she intends the colony to remove. Both then return, and each taking up another ant, bring them, in a similar manner, to the new settlement. These, when instructed in the way, return and fetch others; and this process is continued by all the guides, their numbers increasing in rapid progression till the whole has been transported to the new place of abode.

It is impossible to contemplate the actions of such minute beings, in whom not only all the parental affections subsist in as full force as in the larger animals, but the social sympathies also prevail in a much more extraordinary degree, without feelings of wonder and admiration. The zeal with which the bee will devote its life to the service of the community of which it forms a part has long been known; but the ant is not inferior to the bee either in courage or in patriotism; and, moreover, bears testimony, by unequivocal actions, of a degree of tenderness and affection which we can hardly bring ourselves to conceive could animate a being of a condition so apparently inferior. Latreille, in the course of his experiments, had deprived some ants of their antennæ: their distress was no doubt perceived and shared by their companions, who caused a transparent liquor, which probably possessed some healing properties, to flow from their own mouths, and with this they anointed the wounds of the sufferers. Many traits of their fondness and tender care of their females were witnessed by the author; they give the most remarkable proof of the permanence of their affection when any of the impregnated females happen to die; in which case, five or six of her attendants remain with her for many days, licking and caressing the body without intermission, as if they hoped to recal her to life by their caresses. Many anecdotes are related by Mr. Huber of their readiness to assist one another, and of their manifesting a desire that their companions should participate in the advantages and enjoyments that occurred to themselves.

While ants thus enjoy all the advantages of a state of civilization, they are not exempt from the passions that disturb domestic peace, and the evils that interrupt the harmony of social life. Can it be that war, with its attendant calamities, is the necessary concomitant of society; and must it also be the scourge of communities among insects, as well as among beings who pride themselves in such superior endowments? It is but too true that the history of ants affords no exception to this apparent connexion of things. The almost Utopian picture of a republic, which the preceding accounts exhibit, is deformed by features of ferocity which blend themselves with the estimable qualities we have described. In the hostilities of animals we generally find a mixture of stratagem and of force; and they consist almost wholly in occasional struggles between individuals who prey upon one another. But the modes of warfare pursued by ants is of a totally different character. Their aggressions are made by large armies; and their battles are general engagements between contending nations. The wars they wage are always open and direct, and exhibit none of the hearts of deceit; their operations are conducted on a scale of magnitude that is astonishing. The labourers and the females are the only ants that engage in these conflicts. Some species are provided with stings; others employ their jaws in the infliction of wounds, and apply to the bitten part a drop of acrid fluid, which is secreted for this purpose. Their combined attacks upon various insects, even of considerable size, are well known. In hot climates they extend their hostilities to the smaller quadrupeds, such as rats; and, in some countries, become formidable even to man. But the greatest enemy to the ant is the ant itself. The lesser are frequently enabled, by their courage as well as by superior numbers, to overpower the stronger species; and jealousies often spring up between rival states belonging to the same species. Each has its peculiar system of tactics, which is varied according to the enemy to whom they are opposed. The fury and desperation with which they fight is inconceivable. When an ant has fastened upon his adversary, it will suffer its limbs to be torn, one by one, from its body, rather than let go its hold; and they are frequently seen to carry about with them, as trophies of their victories, the mangled portions of those they have subdued. The theatres of the most extended engagements are the forests inhabited by the fallow ants.

There is one species of large ants which Mr. Huber denominates Amazones, who inhabit the same nests with an inferior species, namely, the dark ash-coloured ant, (*noir cendrée*), and whom we may call their auxiliaries. As soon as the heat of summer has set in, the amazons muster their forces, and, leaving the auxiliaries to take care of the nest, march out in regular order, sometimes dividing their forces into two expeditions, but generally proceeding in one united army to the point of attack, which is always a nest belonging to ants of the same species as the auxiliaries with whom they live. These resist the aggression with great courage; but are soon compelled to fly from the superior force of the invaders, who enter at the breach they have made, and proceed to plunder the nest of all the eggs and larvæ which they can carry off. They return laden with this booty to their own habitations, and consign it to the care of the ash-coloured ants belonging to their community, who are waiting in eager expectation to receive them. These eggs and larvæ are watched, nourished, and reared to maturity, with the same care and assiduity which the auxiliaries bestow on their own progeny; and thus they become, in process of time, inmates in the same society with those who had originally kidnapped them; and towards whom, had they been brought up at home, they would have cherished an instinctive and inveterate hatred. The sole object of the amazons in these expeditions is to procure this supply of recruits for the advantage of the community to which they belong; and the sole business of their lives is to carry on these marauding adventures. They do not assist in any of the ordinary labours of the community. The tasks of building and repairing their city, of providing nourishment for the whole society, of rearing the brood of young, both of their own species and that of their companions, are entrusted solely to the race of auxiliaries, to whose services they have become entitled by right of conquest. In times of peace the amazons are totally inactive, and dependent on the labouring classes of the auxiliaries, who feed and caress them, minister to all their wants, and carry them wherever the temperature of the air is most grateful. In a word, they are gentlemen, waited on by their domestics, who appear to retain no sense of the injury that has been done them by their masters, but bear towards them the tender affection of children towards their parents. The more cruel relation of master and of slave seems, indeed, to be entirely excluded from this singular association of insécts. In order to have a just idea of the complex system it involves, we must recollect, that each species consists of three kinds of sexes, having perfectly distinct offices to perform: that each insect exists in three different stages of transformation; and that, in addition to the race of ants, several species of aphis are also inmates under the same roof. In some nests our author found auxiliary ants of a different species from the ash-coloured, being what he called miners (*mineuses*), but still bearing, in all respects, the same relations to the amazons that the ash-coloured did in the former case, and obtained from their parents by the same violent methods.

The amazons are not the only ants that carry on this species of slave-trade; the sanguine ants (*fourmis sanguines*) having offered analogous facts with those above related. The author even discovered nests in which the sanguine ants are attended by both the above-mentioned species of auxiliaries; thus forming a triple association of races of ants, having very different manners and habits, but concurring in the same objects of necessary industry. For the particular circumstances of these discoveries we must refer our readers to the work itself, which will amply repay the curiosity of those who peruse it.

The facts disclosed in this volume of researches are too extraordinary not to render us, at first sight, suspicious of the evidence on which they are advanced; and will naturally raise a doubt whether the narrative has not received too much embellishment from the colouring of a warm imagination. Upon a more strict examination, however, we do not think there exists any reasonable ground for such suspicions: the facts are stated with sufficient distinctness to justify our placing full confidence in their accuracy, independently of the known character of the author who relates them. He every where states what he has himself seen, and what others might verify by following the same methods of observation. Although many naturalists have already studied the history of ants, yet much discordance and obscurity has prevailed with regard to many essential points in their economy; a circumstance that has arisen from their never having been able to see what was going on in the interior of the nests, which is the scene of the most important and interesting features of their history. To Mr. Huber belongs the merit of inventing an apparatus, and method of observation, which bring within view all the operations which these insects had hitherto conducted in secret. The difficulties he had to contend with in contriving a glass case which would admit the light into their apartments, without alarming or disturbing them in their employments, were at first great, but by perseverance were at length overcome. Even methods which succeeded for a time were frequently defeated by the sagacity of these insects, who are extremely jealous of intruders, exquisitely sensible to all variations of temperature, and always alarmed at the presence of light in their subterranean abodes. At last, by placing wooden boxes with glass windows, in which he had introduced a nest of ants, on a table in his study, and keeping them prisoners, by immersing the feet of the table in buckets of water, he was enabled to make them the subject of continued observation, and to vary his experiments on the same individuals. Habit, and the experience that no evil was intended, gradually reconciled the ants to the visits of their inspector. By comparing the results of these observations and experiments with similar ones made on the same species of ants in their natural state of freedom, he satisfied himself that perfect reliance could be placed on their accuracy.

The facts which have thus been brought to light are not valuable merely as supplying chasms in the history of a single genus of insects; they are of importance, in as far as they point to more general views of the faculties of the lower animals, and to the solution of some of the questions with regard to instinct, to which we formerly adverted. On a superficial comparison of the actions of animals with those of our own species, much apparent resemblance may be traced; but on examining them with more attention, with respect to the source from which they are derived, the analogy becomes much more weak, and the difficulty of explaining the greater number has been so considerable, that many philosophers have cut the knot, by referring generally the actions of man to reason, and those of brutes to instinct. It was pretended, that their faculties differed not merely in degree but in kind; and that, in a word, there existed between them no principle in common. Observation must, however, convince us, that the lower animals exert, in many instances, a choice of means for accomplishing their ends; and that they are capable of a degree of combination of those means, conformable with the variation of external circumstances. It is obvious, that actions prompted by mere appetite, which is the direct result of organization producing pain or pleasure, cannot be properly termed instinctive, at least, in the sense in which instinct is opposed to reason. Still less can it be said that instinct is the source of those actions which procure the means of gratifying appetite, when their effect in procuring those gratifications is already known to the individual who employs them. Knowledge, therefore, as far as it goes, excludes instinct. Now this knowledge may be either acquired by personal experience, or it may be derived from the tradition of others; and innumerable instances occur in which animals acquire, in both ways, that kind of knowledge that influences their conduct. But the term instinct has also been applied to actions resulting from knowledge not derived from either of these sources, that is, from innate knowledge. There are many facts, indeed, which prove, that the avenues to some species of knowledge are in animals different from what they are with us. The kid, the moment after it is dropped, and antecedent to all experience, shows us plainly, by its movements, that it knows at once, and without the long chain of inductive reasoning which Berkeley assigns as the source of our acquired perceptions of sight, the distances and situations of the objects which are placed before it.

It is to those actions alone that lead to beneficial consequences unforeseen by the agent, and not resulting from any knowledge of the effects they produce, that the term instinct is more peculiarly appropriated. Thus, the sagacity of the bird, which though it was yet unfledged when taken from its parent, will yet construct at a proper time a nest for its own young, and will sit over its eggs with unwearied constancy, while we must suppose it unacquainted with the future pleasures that will be the reward of these exertions, and even unconscious of their object, is properly said to be derived from instinct. Could we succeed in assigning a motive to these actions, we should redeem them from this class, and recognise their place in some other. To this object have the efforts of Darwin and other contemplative naturalists been directed; but the attempts too often fail, from their being the offspring of fanciful conjecture, instead of the results of cautious induction.

Many of the phænomena brought to light by M. Huber receive, however, a much simpler explanation, on the principle of real foresight in the agents themselves, founded on acquired knowledge, than on any other supposition. There is a circumstance in the history of these insects, that is at variance with all our preconceived notions of the stationary condition of the races of inferior animals. The amazons, whose republics, like those of other ants, are descendants from one parent stock, and who, in the infancy of their several colonies, must have performed all the duties of labourers in maintaining their families; when, in process of time, their numbers have increased, and probably when whole generations have passed away, become capable of acquiring new habits and characters by the advantages of their condition. They are enabled to procure auxiliaries, and they desist altogether from their former labours. We see, in like manner, the instincts of these auxiliaries reversed, by being brought up in the society of their natural oppressors, and their animosities giving place to a state of the most friendly alliance.

The descriptions of these same animals in other climates, sufficiently show what formidable power they acquire when the efforts of numbers are combined. Mr. Malouet mentions in his account of his travels through the forests of Guyana, his arriving at a savannah, extending in a level plain beyond the visible horizon, and in which he beheld a structure that appeared to have been raised by human industry. M. de Prefontaine, who accompanied him in the expedition, informed him that it was an ant hill, which they could not approach without danger of being devoured. They passed some of the paths frequented by the labourers, which belonged to a very large species of black ants. The nest they had constructed, which had the form of a truncated pyramid, appeared to be from fifteen to twenty feet in height, on a base of thirty or forty feet. He was told that when the new settlers, in their attempts to clear the country, happened to meet with any of these fortresses, they were obliged to abandon the spot, unless they could muster sufficient forces to lay regular siege to the enemy. This they did by digging a circular trench all round the nest, and filling it with a large quantity of dried wood, to the whole of which they set fire at the same time, by lighting it in different parts all round the circumference. While the entrenchments are blazing, the edifice may be destroyed by firing at it with cannon; and the ants being by this means dispersed, have no avenue for escape, except through the flames, in which they perish. The narrations of Mr. Smeathman, relative to the white ant of Africa, are also calculated to raise our ideas of the magnitude of these republics of insects, which must surpass the largest empire in the numbers of their population.

The superiority of the faculties of ants has been traced to the strength of the social disposition which unites them. We might perhaps venture a step farther, and point out several circumstances in their physical condition, as the probable origin of this disposition to associate together. These are to be found, first, in the delicacy of their perceptions, in which they appear to excel most insects. They are, as we have seen, extremely sensible to variations of temperature, and generally averse to moisture. In the first stages of their existence, they are formed so as not to be capable of resisting the ordinary action of the air, and being totally helpless, would speedily perish, if left to themselves; and we have seen what assiduous and persevering care is required during the whole period of the hatching of the eggs, and the progress of the larva to maturity. All these circumstances place the young for a much longer time in a state of dependence upon their natural protectors, than in the case of most other insects: and in all these circumstances they agree with the bee and the wasp, which are alike gregarious. We recognise in our own species the foundation that is laid for the ties of society, by the helpless condition of the infant, which continues for so long a period to be dependant on others; and can we refuse to admit the operation of a similar principle in other departments of the animal creation, which are obedient to the laws which the same Providence has ordained for the good of all?

Greater varieties unquestionably occur in the conditions of animals than most philosophers have been willing to allow; and it must be confessed, that in spite of all our efforts at philosophical distinctions, the various kinds of actions of animals pass into one another by such imperceptible shades, and their sensitive existence differs so widely from our own, that we have properly no measure by which to fathom their reasoning powers. As well might we hope to discover the origin of the *punctum saliens* in the incubated egg, as to determine the point where the dawn of intellect appears, or assign the boundary where instinct assumes the form of reason. Nothing is simple in nature: all that we see is the effect of prodigious art: means are accumulated for the production of remote ends, in a series extending far beyond the sphere of our limited optics. We can discern clearly but a few of the final causes in nature, and but a few of the powers that operate in their accomplishment. See for other valuable observations the article on M. Huber's work in the Edin. Rev. No. xxxix.

The VERMES, or worm class, consists of animals very differently formed, of very different manners, and inhabiting very different situations. Under the Linnéan arrangement they may, in a general view, be divided into such as are naked, and such as are covered with a shelly or other defensive integument. They consist, in fact, of all animals which Linnéus regarded as below the rank of insects, and which he did not know how else to dispose of, and in this respect are analogous to his class of cryptogamia in botany.

The method of Cuvier, which we shall immediately subjoin, will be found a considerable improvement upon that of Linnéus in this respect. He separates the mollusca and testacea from the proper worms and the zoophytes, and arranges them into a distinct division, as we have already observed he pursues in the crustacea.

Blumenbach, as we have also remarked, chiefly differs from Cuvier, as well in this as in the preceding classes, in his subdivisions; for in the grand outlines of their arrangements the two methods may be regarded as one and the same: and we now proceed to run a parallel between them, for a comparison with the foregoing classification of Linnéus.

Animals, as indeed we have already observed, are distributed in the view of these celebrated physiologists into two grand divisions: those which have a vertebral column and red blood, and those which have no vertebræ, and are white-blooded.

In the former division there is always an interior skeleton; and a spinal marrow contained in the vertebral canal; never more than four members, of which one, or both pairs, are wanting in some instances. The brain is contained in a cranium: there is a great sympathetic nerve; five senses; two moveable eyes; and three semicircular canals in the ear. The circulation is performed by one muscular ventricle at least. There are lymphatic, as well as blood-vessels. The jaws being placed horizontally, the mouth is opened by their moving from above downwards, or from before backwards. There is a continuous alimentary canal; peritoneum; liver, spleen, and pancreas, two kidneys, and renal capsules; and two testicles.

The vertebral animals are subdivided into the warm and cold-blooded.

Warm-blooded vertebral animals have both ventricles in the heart, and a double circulation; and breathe by means of lungs. The cranium is completely filled by the brain. The eyes are closed by eyelids. The tympanum of the ear is hollowed out of the cranium, and the labyrinth is excavated in the bone. Besides the semi-circular canals, there is a cochlea. The nostrils communicate with the fauces, and allow the passage of air into the lungs. The trunk is constantly furnished with ribs.

In cold-blooded vertebral animals the brain never entirely fills the cranium. The eyes seldom possess moveable eyelids. When the tympanum exists, it is on a level with the surface of the head. There is no cochlea. The different parts of the ear are connected but loosely to the cranium.

The division of warm-blooded animals contains two classes; mammalia and birds.

The *mammals* are viviparous, and suckle their young (from which circumstance the name is derived). They have an uterus with two cornua; and the male has a penis.

There are two occipital condyles: a very complicated brain; four ossicula auditus, and a spiral cochlea. The skin covered with hair. A muscular diaphragm separates the chest and abdomen. There is an epiglottis. The lower jaw only moves. The fluid in the lacteals is white, and passes through several conglobate glands. There is an omentum.

Blumenbach establishes the following orders in this class:

I. Bimanum. Two handed.

Genus I. Homo.

II. Quadrumana, four handed animals: having a separate thumb, capable of being opposed to the other fingers, both in their upper and lower extremities. Teeth like those of man, except that the cuspidati are generally longer.

1. Simiæ, apes, monkeys, baboons.
2. Lemur, macauco.

III. Bradypoda, slow-moving animals.

1. Bradypus, sloth.
2. Myrmecophaga, ant-eater.
3. Manis, scaly-lizard, or pangolin.
4. Dasypus or tatu, armadillo.

This order forms two in the arrangement of Cuvier, 1st, Tardigrada; which includes the sloths. There are no incisors in either jaw. There is a complicated stomach, but no rumination. 2dly, Edentata, toothless animals. Some of these have no teeth; others want the incisores and cuspidati. The tongue is long, slender, and projectile, for seizing the insects on which the animals feed; body covered with hard substances. The armadillo, manis, ant-eater, and ornithorhyncus, or duckbilled animal, belong to this order.

IV. Cheiroptera, having the fingers elongated for the expansion of a membrane, which acts as a wing.

Vespertilio, bat.

V. Glires. Rodentia of Cuvier—gnawing animals. Have two long and very large incisor teeth in each jaw, by which they cut and gnaw hard bodies, chiefly vegetables. There is a large interval behind these teeth, unoccupied by cuspidati.

1. Sciurus, squirrel.
2. Glis, dormouse (Myoxus, Linn).
3. Mus, mouse and rat.
4. Marmota, marmot.
5. Cavia, guinea-pig.
6. Lepus, hare and rabbit.
7. Jaculus, jerboa.
8. Castor, beaver.
9. Hystrix, porcupine.

VI. Feræ, predaceous and carnivorous animals. Very strong and large pointed canine teeth: molares forming pointed prominences. Short and simple alimentary canal, and consequently slender belly.

1. Erinaceus, hedge-hog.
2. Sorex, shrew.
3. Talpa, mole.
4. Meles, badger.
5. Ursus, bear.
6. Didelphis, opossum, kanguroo.
7. Viverra, weasels, ferret, polecat, civet.
8. Mustela, skunk, stoat, &c.
9. Canis, dog, wolf, jackal, fox, hyena.
10. Felis, cat, lion, tiger, leopard, lynx, panther, &c.
11. Lutra, otter.
12. Phoca, seal or sea-calf.

The five first genera of this order form the plantigrada of Cuvier; animals which rest the whole of the foot on the ground. They are less carnivorous than the others; have a longer intestinal canal, and no cæcum.

The sixth genus forms the pedimana of the same zoologist: as they possess a separate thumb on the hind extremities only. They have a pouch in the abdomen containing the mammæ, and holding the young in their early state. One species, the kanguroo, (macropus major of Shaw) must however be excepted. That is placed among the rodentia; and does not possess the separate thumb.

The order carnivora of Cuvier will include from the 7th to the 11th genus: both inclusive. The seals belong to his amphibia.

VII. Solidungula (solipeda, Cuvier) a single toe on each foot, with an undivided hoof. Large intestines, and particularly an enormous cæcum. Incisors in both jaws.

1. Equus, horse and ass.

VIII. Pecora or Bisulca (ruminantia of Cuvier), a divided hoof. No incisores in the upper jaw. Stomach consisting of four cavities. Rumination of the food. Long intestines.

1. Camelus, camel, dromedary, lama.

2. Capra, sheep, goat.
3. Antilope, antelope, chamois.
4. Bos, ox, buffalo.
5. Giraffa, giraffe or camelopard.
6. Cervus, elk, deer-kind.
7. Moschus, musk.

IX. **Belluæ**, animals of an unshapely form, and a tough and thick hide; whence they have been called by Cuvier, pachydermata (from παχυς, thick, and δερμα, skin). They have more than two toes: incisors in both jaws; and in some cases enormous tusks.

1. Sus, pig kind, pecari, babiroussa.
2. Tapir.
3. Elephas.
4. Rhinoceros.
5. Hippopotamus.
6. Trichecus, morse or walrus, manati or seacow.

The last genus of this order, together with the phoca (seals), constitutes the amphibia of Cuvier. These animals have short members adapted for swimming.

X. **Cetacea**, whales, living entirely in the sea; and formed like fishes; breathe by an opening at the top of the head, called the blowing-hole; through which they throw out the water, which enters their mouth with the food. Smooth skin covering a thick layer of oily fat. No external ear. A complicated stomach. Multilobular kidneys, larynx of a pyramidal shape, opening towards the blowing-hole. Testes within the abdomen. Mammæ at the sides of the vulva. Bones of the anterior extremity concealed and united by the skin, so as to form a kind of fin.

1. Monodon, narwhal, sea-unicorn.
2. Balæna, proper whales.
3. Physeter.
4. Delphinus, dolphin, porpoise.

Cuvier distributes the class mammalia into three grand divisions:

1. Those which have claws or nails *(mammiféres a ongles)*; including the following orders: bimana, quadrumana, cheiroptera, plantigrada, carnivora, pedimana, rodentia, edentata, tardigrada.
2. Those which have hoofs (*mammif. a ongles)* including the pachydermata, ruminantia, and solipeda.
3. Those which have extremities adapted for swimming (*mammif. a pieds en nageoire)*. Amphibia and cetacea.

Birds are oviparous; have a single ovary and oviduct; a single occipital condyle; a very large sternum; and anterior extremities adapted for flying.

They have three eyelids; no external ear; a cochlea conical, but not spiral; a single ossiculum auditus; body covered with feathers. The lungs are attached to the surface of the chest; and penetrated by the air, which goes all over the body: there is a larynx at each end of the trachea; no epiglottis. The jaws are covered with a horny substance. The chyle is transparent; no mesenteric glands; nor omentum. No bladder of urine; the ureters terminating in a bag through which the eggs and fæces come, viz. the cloaca.

This class cannot be distributed into orders so clearly distinguished by anatomical characters as the preceding one. Blumenbach divides them into two leading divisions.

(A) TERRESTRIAL BIRDS.

Order I. **Accipitres.** Birds of prey; with strong hooked bills, and large curved talons, a membranous stomach, and short cæca.

1. Vultur, vultures.
2. Falco, falcon, eagle, hawk, kite.
3. Strix, owl.
4. Lanius, shrike or butcher bird.

II. **Levirostres**, light-billed birds, having a large hollow bill.

1. Psittacus, parrot kind.
2. Ramphastos, toucan.
3. Buceros, rhinoceros birds.

III. **Picæ**, this and the two following orders are not clearly characterised.

1. Picus, woodpecker.
2. Jynx, wryneck.
3. Sitta, nuthatch.
4. Alcedo, kingsfisher.
5. Trochilus, humming birds, &c. &c.

IV. **Coraces.**

1. Corvus, crow, raven, jackdaw, magpie, jay, &c.
2. Coracias, roller.
3. Paradisea, birds of paradise.
4. Cuculus, cuckow, &c. &c.

V. **Passeres**, small singing-birds.

1. Alauda, lark.
2. Sturnus, starling.
3. Turdus, thrush, blackbird.
4. Emberiza, bunting.
5. Fringilla, finches, canary-bird, linnet, sparrow.
6. Motacilla, nightingale, redbreast, wren.
7. Hirundo, swallows, martins, &c.
8. Caprimulgus, goatsucker, &c.

VI. **Gallinæ**, gallinaceous birds, mostly domesticated. They possess a large crop, strong muscular gizzard.

1. Columba, pigeons.
2. Tetrao, grous, quail, partridge.
3. Numida, guinea-fowl.
4. Meleagris, turkey.
5. Pavo, peacock.
6. Otis, bustard.

VII. **Struthiones**, struthious birds. The largest of the class: possess extremely small wings, and are therefore incapable of flight; but run very swiftly.

1. Struthio, ostrich.
2. Casuarius, cassowary or emu.

(B) AQUATIC BIRDS.

Order I. **Grallæ**, waders, frequenting marshes and streams; long naked legs; long neck; cylindrical bill of different lengths.

1. Ardea, crane, stork, heron, bittern.
2. Scolopax, woodcock, snipe, curlew.
3. Tringa, lapwing, ruffs and reeves.
4. Charadrius, plover.
5. Fulica, coot.
6. Rallus, rail.
7. Phænicopterus, flamingo.
8. Tantalus, ibis, &c.

II. **Anseres**, swimming birds; web-footed; bill broad and flat, covered by a somewhat soft substance, on which large nerves are distributed.

1. Colymbus, diver.
2. Larus, gull.
3. Procellaria, petrel.
4. Diomedea, albatross.
5. Pelecanus, pelican, cormorant.
6. Anas, swan, duck, goose.
7. Mergues, goosander.
8. Alca, auk, puffin.
9. Aptenodytes, penguin.

The two classes of cold-blooded vertebral animals are the *amphibia* and *fishes.*

The former, differing considerably from each other, have very few common characters; for in different instances they walk, fly, swim, and crawl. There is no external ear, nor cochlea; the brain is always very small. The lungs are in the same cavity with the other viscera; no epiglottis, omentum, nor mesenteric glands. Two ovaries and oviducts. Cloaca, through which the fæces and urine are expelled; and in which the organs of generation terminate. Neither hair, feathers, nor mammæ.

Order I. Reptilia, having four feet, (quadrupeda ovipara).

1. Testudo, tortoise, turtle.
2. Rana, frog, toad.
3. Lacerta, lizards, crocodile, chameleon, newt, salamander, iguana, &c.

II. Serpentia. No external members; body of an elongated form, and viscera of a similar shape. They are oviparous; but the egg is sometimes hatched in the oviduct. Both jaws moveable.

1. Crotalus, rattlesnake.
2. Boa. Immense serpents of India and Africa.
3. Coluber, viper.
4. Anguis, blindworm.
5. Amphisbæna.
6. Cæcilia.

Fishes. Breathe by means of branchiæ or gills; and have no trachea, or larynx. Organs of motion consisting of fins. Nose unconnected with the organs of respiration. Ear entirely inclosed in the head; the tympanum, &c. being absent. Both jaws moveable. The place of the pancreas supplied by the pyloric cæca. An urinary bladder. Two ovaries. Heart consisting of a single auricle and ventricle. They may be distributed into two leading divisions; the cartilaginous; whose skeleton consists of cartilage: the bony; where it is formed of a more firm substance.

(A) Cartilaginous fishes.

Order I. Chondropterygii; having no gill-cover; an uterus, with two oviducts.

1. Petromyzon, lamprey.
2. Gastrobranchus.
3. Raia, skate, torpedo, stingray.
4. Squalus, shark, saw-fish.
5. Lophius, sea-devil, frog-fish.
6. Balistes, file-fish.
7. Chimæra.

II. Branchiostegi; having a gill-cover.

1. Accipenser, sturgeon, beluga.
2. Ostracion, trunk-fish.
3. Tetrodon.
4. Diodon, porcupine-fish.
5. Cyclopterus, lumpsucker.
6. Centriscus.
7. Syngathus, pipe-fish.
8. Pegasus.

(B) Bony fishes, divided according to the situation of their fins.

Order I. Apodes; no ventral fins.

1. Murænà, eel-kind.
2. Gymnotus, electrical eel.
3. Anarrhichas, sea-wolf.
4. Xiphias, sword-fish.
5. Ammodites, launce.
6. Ophidium.
7. Stromateus.
8. Trichiurus.

II. Thoracici; ventral fins directly under the thoracic.

1. Echeneis, sucking fish.
2. Coryphæna, dorado.
3. Zeus, dory.
4. Pleuronectes, flounder, plaice, dab, holibut, sole, turbot.
5. Chæladon.
6. Sparus.
7. Perca, perch.
8. Scomber, mackarel, bonito, tunny.
9. Mullus, mullet.

&c. &c.

III. Abdominales; ventral fins behind the thoracic; chiefly inhabit fresh water.

1. Cobitis, loach.
2. Silurus.
3. Salmo, salmon, trout, smelt.
4. Esox, pike.
5. Clupea, herring, sprat, shad.
6. Cyprinus, carp, tench, gold-fish, minow, &c. &c.

IV. Jugulares; ventral fins in front of the thoracic.

1. Gadus, hadock, cod, whiting, ling.
2. Uranoscopus, stargazer.
3. Blennius, blenny.
4. Callionymus, dragonet.
5. Trachinus, weaver.

The animals which have no vertebral column do not posses so many common characters as the vertebral classes. Their hard parts, when they have any, are generally placed on the surface of the body. The centre of the nervous system, instead of being inclosed in a bony case, lies in the same cavity with the viscera. The œsophagus is generally surrounded by a nervous chord coming from the brain. Their respiration is not carried on by lungs; and they have no voice. Their jaws move in various directions. They have no urinary secretion.

The invertebral animals were distributed by Linnéus into two classes; *insects* and *worms* (vermes). The anatomical structure of these animals was very imperfectly known, when the Swedish naturalist first promulgated his arrangement. But the labours of subsequent zoologists, and particularly those of Cuvier, have succeeded in establishing such striking and important differences in their formation, that a subdivision of the Linnéan classes became indispensably necessary. The insects of Linnéus are divided into crustacea and insecta: and the vermes of the same author form three classes; viz. *mollusca*, *vermes*, and *zoophyta.*

The mollusca derive their name from the soft fleshy nature of their body. This class includes those pulpy animals, which may either be destitute of an external covering, when they are called mollusca nuda, as the lug; or may be enclosed in one or more shells, as the snail, oyster, &c. when they are termed testacea.

The animals of this class have no articulated members: they have blood-vessels, and a true circulation. They respire by means of gills. They have a distinct brain, giving origin to nerves; and a spinal marrow.

1. Sepia, cuttlefish.
2. Argonauta.
3. Nautilus.
4. Limax, slug.
5. Aplysia.
6. Doris.
7. Clio.
8. Patella, limpet.
9. Helix, snail.
10. Haliotis, Venus's ear.
11. Murex, caltrop, or rockshell.
12. Strombus, screw.
13. Buccinum, whelk.
14. Ascidia.
15. Thalia.
16. Ostrea, oyster.
17. Solen, razorshell.
18. Cardium, cockle.
19. Mytilus, muscle,
    &c. &c.

Cuvier classes the numerous genera of this order under the three following divisions; 1st. cephalopoda, (from ϰεφαλη, the head, and πȣς, the foot) which have their organs of motion placed round the head: 2dly, gasteropoda, (from γαϛηρ, the belly, and πȣς), such as crawl on the belly and 3dly, acephala, (from α, privative, and ϰεφαλη,) which have no head. The three first genera belong to the first division; the ten succeeding ones come under the second; and the remainder exemplify the last order.

According as the shell of the testaceous mollusca consists of a single convoluted tube; or of two or more separate pieces, they are called cochleæ bivalves, multivalves, &c.

Crustacea possess a hard external covering, and numerous articulated members. A long nervous chord, beset with ganglia. Compound eyes. Antennæ and palpi like those of insects. A heart and circulating vessels; and gills. Teeth in the cavity of the stomach.

1. Cancer, crab, lobster, crayfish, shrimp.
2. Monoculus.

Insects have articulated members and antennæ. Those which fly are subject to what is called a metamorphosis: they pass through certain intermediate states of existence, before they assume the last, or perfect form. From the egg proceeds the larva, or caterpillar; this changes to the chrysalis, nympha, or aurelia; from which the perfect insect is produced. Nervous system consisting of a chord beset with ganglia. No heart nor blood-vessels. Respiration carried on by means of tracheæ.

Order I. COLEOPTERA; having a hollow horny case, under which the wings are folded.

1. Scarabæus, beetles.
2. Lucanus, stag-beetle.
3. Dermestes.
4. Coccinella, ladybird.
5. Curculio, weevil.
6. Lampyris, glow-worm.
7. Meloe, Spanish-fly.
8. Staphylinus.
9. Forficula, earwig.

II. HEMIPTERA; four wings, either stretched straight out, or resting across each other.

1. Blatta, cockroach.
2. Gryllus, locust, grasshopper.
3. Fulgora, lantern-fly.
4. Cimex, bug,
   &c. &c.

III. LEPIDOPTERA; soft hairy body, and four expanded wings.

1. Papilio, butterfly.
2. Sphinx, } moths.
3. Phalæna, }

IV. NEUROPTERA; four reticulated wings.

1. Libellula, dragon-fly.
2. Ephemera,
   &c.

V. HYMENOPTERA; generally possessing a sting.

1. Vespa, wasp, hornet.
2. Apis, bee.
3. Formica, ant.
4. Termes, white ant.
5. Ichneumon,
   &c.

VI. DIPTERA; two wings.

1. Œstrus, gad-fly.
2. Musca, common flies.
3. Culex, gnat, mosquito.
4. Hippobosca, horse-leech,
   &c.

VII. APTERA; no wings.

1. Podura, springtail.
2. Pediculus, louse.
3. Pulex, flea, chigger.
4. Acarus, tick, mite.
5. Aranea, spiders.
6. Scorpio, scorpion,
   &c.

The *Vermes* may be divided into two orders; the intestinal, which inhabit the bodies of other animals; and the external.

The former are not of such a complicated organization as the latter; so that they are sometimes arranged among the zoophytes. The external worms have a nervous chord possessing ganglia; an elongated body composed of rings; and have no distinct head. There are no members. Circulating vessels, but no heart. No nerves have been discovered in the intestinal worms.

Order I. INTESTINI.

1. Gordius, guinea-worm.
2. Ascaris, thread-worm, round-worm.
3. Tricocephalus.
4. Fascioli, fluke.
5. Tænia, tape-worm.
6. Hydatis, hydatid.

II. EXTERNI.

1. Aphrodite, sea-mouse.
2. Sipunculus.
3. Hirudo, leech.
4. Nereis.
5. Nais.
6. Planaria.
7. Lumbricus, earthworm,
   &c.

The *Zoophytes* have neither brain nor nerves; no heart, nor, perhaps, blood-vessels; no articulated members.

Order I. ECHINODERMATA; covered by a hard and tough coriaceous skin.

1. Echinus, sea hedgehog.

2. Asterias, star-fish,
&c.

II. Soft or Gelatinous zoophytes.
1. Medusa, sea-blubber, sea-nettles.
2. Actinia, sea-anemone.
3. Hydra, fresh water polype.

III. Infusoria, the animalcules of infusions.
1. Vorticella, wheel-animal.
2. Brachionus.
3. Vibrio, eel of vinegar.
4. Volvox.
5. Monas.

IV. Inhabitants of corals, corallines, sponges, &c.

The coral reefs that surround many islands, particularly those in the Indian Archipelago, and round New Holland, are produced by various tribes of these animals, particularly by the cellepora, isis, madrepora, milepora, and tubipora. The animals form these corals with such rapidity, that enormous masses of them very speedily appear where there were scarcely any marks of such reefs before.

ZOONOMIA. (from ζωον, an animal, and νομος, a law.) The laws of organic life.

ZOOPHYTA, Zoophytes, in natural history, the fourth order in the Linnéan class vermes: characterised by their being composite animals, efflorescing like vegetables. These are often found in a fossile state in argillaceous, siliceous, but especially calcareous earths: for various specimens of which, see Nat. Hist. Pl. LXXX. LXXXIV. CLIV. CLXXXII. and CLXXXVIII.

ZOOTOMY. (*zootomia*, from ζωον, an animal, and τεμνω, to cut.) The dissection of animals. See Comparative anatomy.

ZOPYRUS. The most remarkable of this name are the following: 1. A Persian, son of Megabyzus, who, to shew his attachment to Darius, the son of Hystaspes, while he besieged Babylon, cut off his ears and nose, and fled to the enemy, telling them he had received such treatment from his royal master because he had advised him to raise the siege, as the city was impregnable. This was credited by the Babylonians, and Zopyrus was appointed commander of all their forces. When he had totally gained their confidence, he betrayed the city into the hands of Darius, for which he was liberally rewarded. 2. A physician in the age of Mithridates. He gave the monarch a description of an antidote which would prevail against all sorts of poisons. The experiment was tried upon criminals, and succeeded.

ZOROASTER, or Zerdusht, a celebrated ancient philosopher, said to have been the reformer or the founder of the religion of the magi. It is wholly uncertain to how many eminent men the name of Zoroaster belonged. Some have maintained that there was but one Zoroaster, and that he was a Persian; others have said that there were six eminent founders of philosophy of this name. Ham, the son of Noah, Moses, Osiris, Mithras, and others, both gods and men, have, by different writers, been asserted to have been the same with Zoroaster. Many different opinions have also been advanced concerning the time in which he flourished. Aristotle and Pliny fix his date at so remote a period as 6000 years before the death of Plato. According to Laertius, he flourished 600 years before the Trojan war; according to Suidas, 500. If, in the midst of so much uncertainty, any thing can be advanced with the appearance of probability, it seems to be this; that there was a Zoroaster, a Perso-Median, who flourished about the time of Darius Hystaspes; and that besides him there was another Zoroaster, who lived in a much more remote period among the Babylonians, and taught them astronomy. The Greek and Arabian writers are agreed concerning the existence of the Persian Zoroaster; and the ancients unanimously ascribe to a philosopher, whom they call Zoroaster, the origin of the Chaldean astronomy, which is certainly of much earlier date than the time of Hystaspes: it seems, therefore, necessary to suppose a Chaldean Zoroaster distinct from the Persian. Concerning this Zoroaster, however, nothing more is known, than that he flourished towards the beginning of the Babylonish empire, and was the father of the Chaldean astrology and magic. All the writings that have been ascribed to Zoroaster are unquestionably spurious.

ZOSIMUS, an officer in the reign of Theodosius the younger, about the year 410 of the Christian era. He wrote the history of the Roman emperors in Greek, from the age of Augustus to the beginning of the 5th century, of which only the five first books and the beginning of the sixth are extant.

ZOSTERA. Grass-wrack. In botany, a genus of the class monœcia, order diandria. Spadix linear, sheathed by the leaf, bearing the fructification on one side; calyxless; corolless; anthers sessile, parallel with the germ; stigmas two; capsule one-seeded. Four species; three natives of the coast on the Red sea; one, zostera marina, common sea-wrack, found on our own shores.

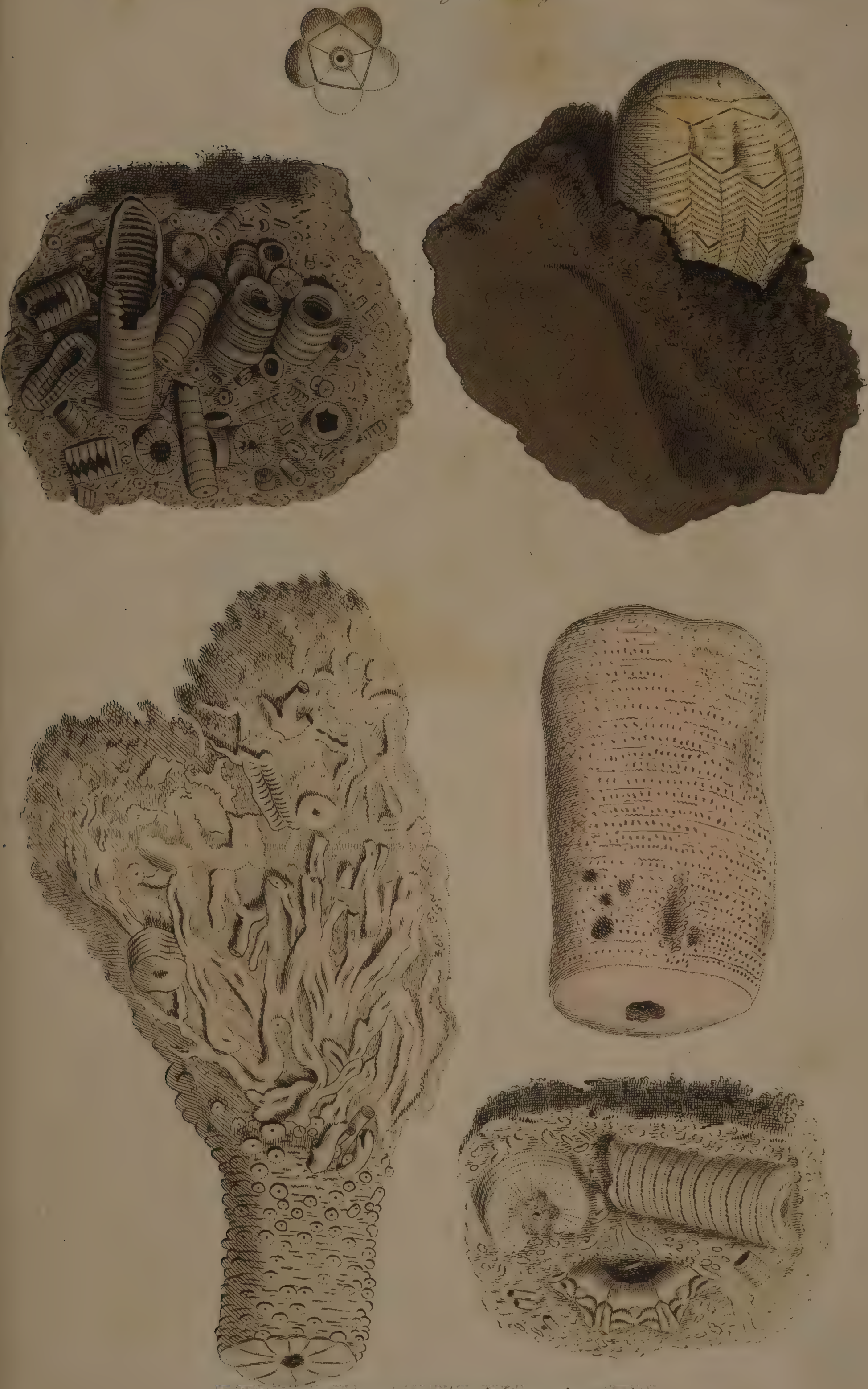
ZOUT PAN, a curious salt lake in the country of the Hottentots, a few miles north of Point Padron. It is in a plain, much above the level of the sea, and three miles in circumference. At some seasons it is formed into an entire mass of fine white salt.

ZUEELA, a town of the kingdom of Fezzan, situate in a district of remarkable fertility, in which the remnants of ancient buildings, the number and size of the cisterns, and the construction of the vaulted caves, intended perhaps as repositories of corn, exhibit wonderful vestiges of ancient splendour. It is 140 miles E. of Moorzook. Lon. 16. 34 E. Lat. 27. 59 N.

ZVENIGOROD, a town of Russia, in the government of Moscow, situate on the Moskva, 28 miles W. of Moscow. Lon. 37. 2 E. Lat. 55. 40 N.

ZUG, a small canton of Swisserland, bounded on the E. and N. by that of Zuric, on the W. by that of Lucern and the Free Provinces, and on the S. by that of Schweitz. It is rich in pasturage; has plenty of various kinds of stone fruit, as well as walnuts and chesnuts; and its wine is of a very acid flavour. The in-

Helmintholithi; Fossile Zoophytes.



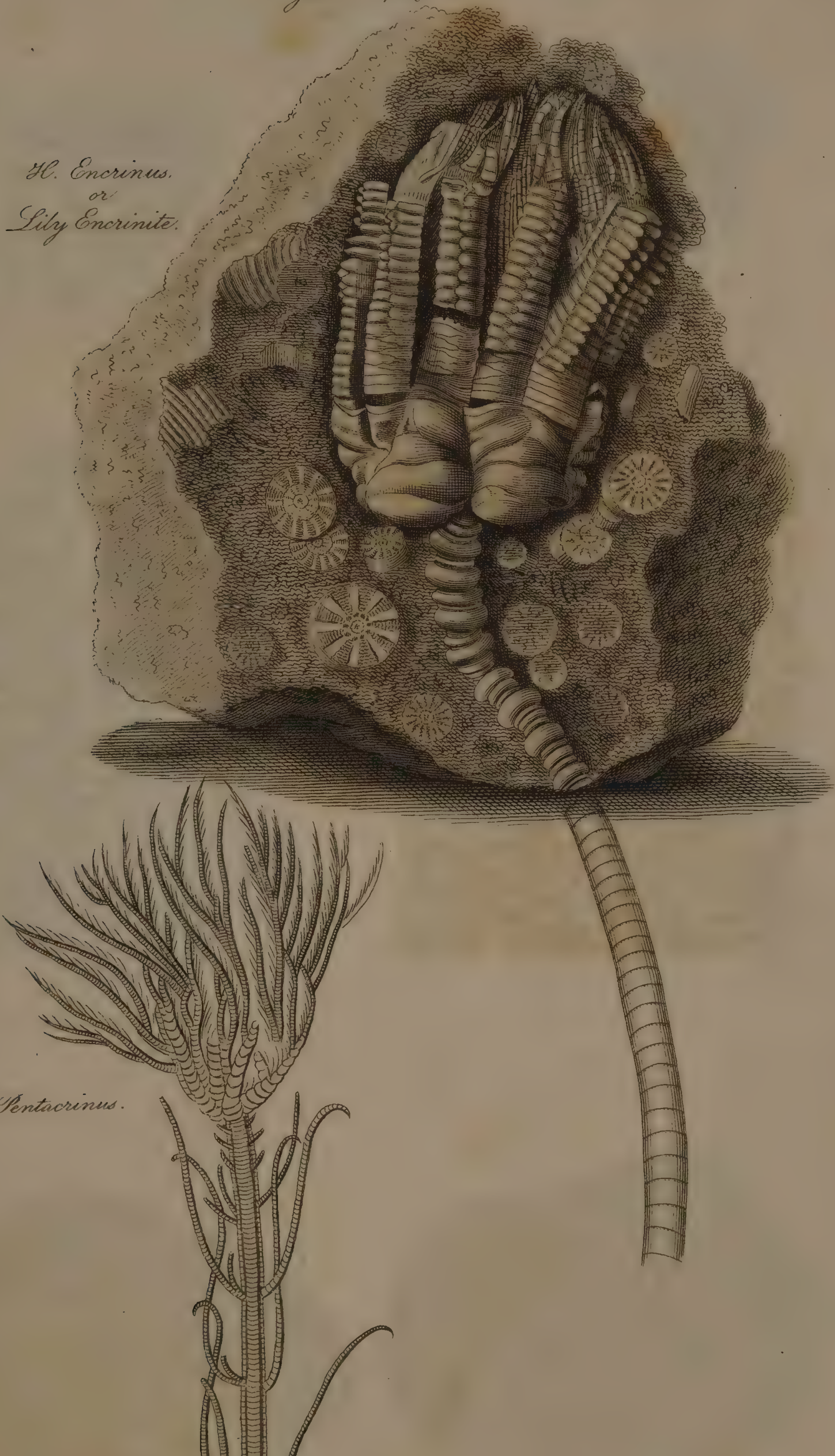
Specimens of Encrinites, found loose or in Marble.

Published by Sherwood & Co. Paternoster Row Nov.r 1. 18

NATURAL HISTORY.

PL. LXXXIV.

Helmintholithi.
Foſsile Zoophytes.



H. Encrinus.
or
Lily Encrinite.

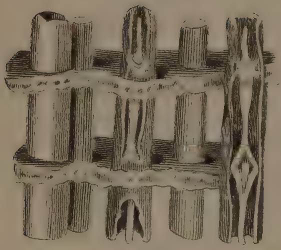
H. Pentacrinus.

London, Published by Sherwood & Co. Paternoster Row, Decr. 1st. 1811.

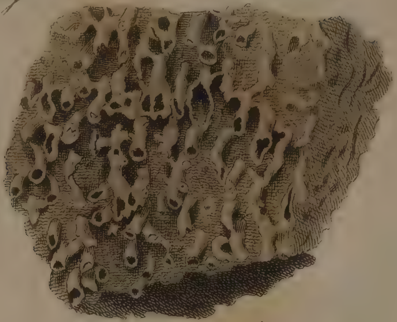
NATURAL HISTORY.

PL. CLIV.

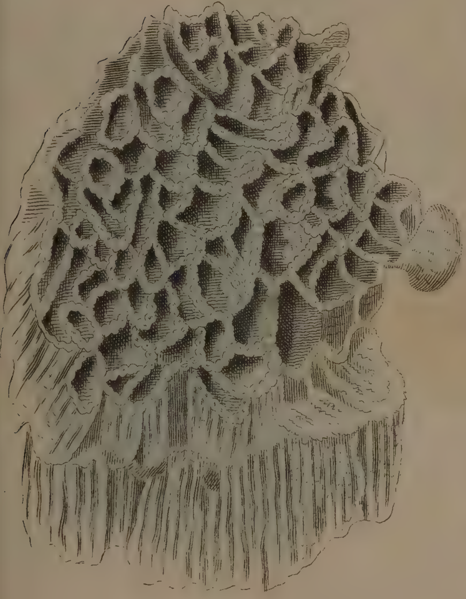
Helmintholithi!
Foſsile Zoophytes.



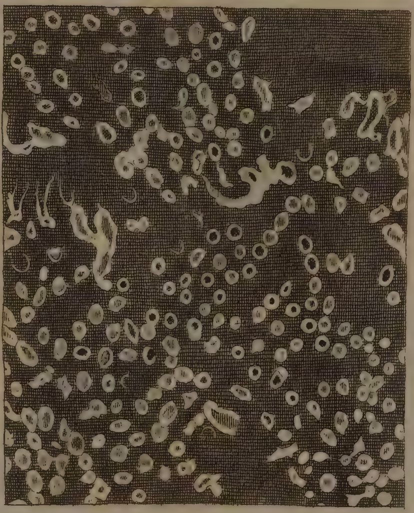
Musical Tubeporite?



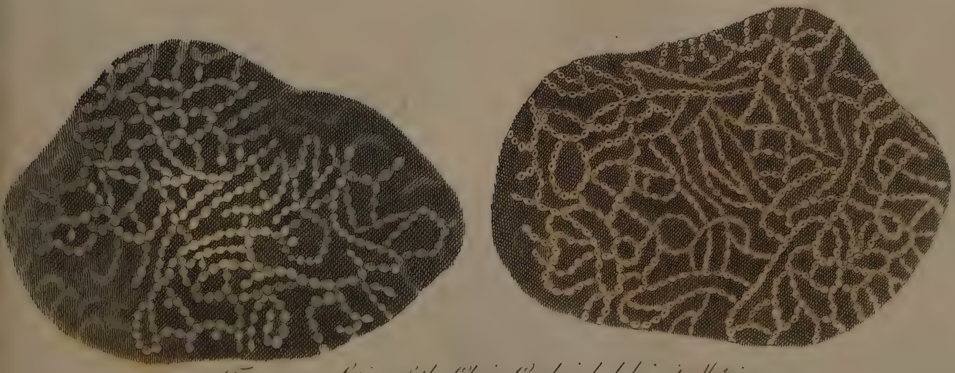
Ramose Tubeporite.



Chain Coral.



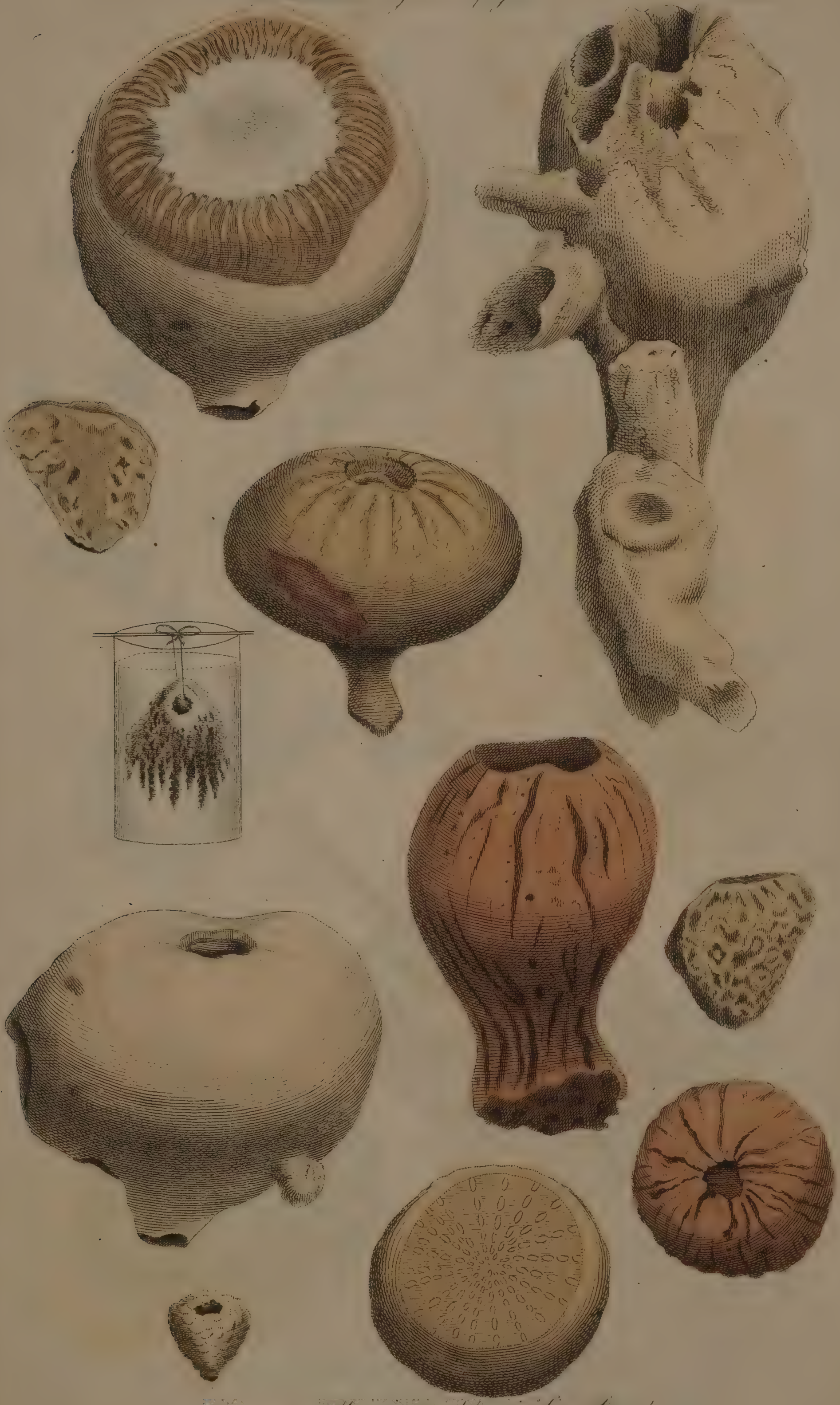
Marble Matrix of Ramose Tubeporite.



Transverse Sections of the Chain Coral imbeded in its Matrix.

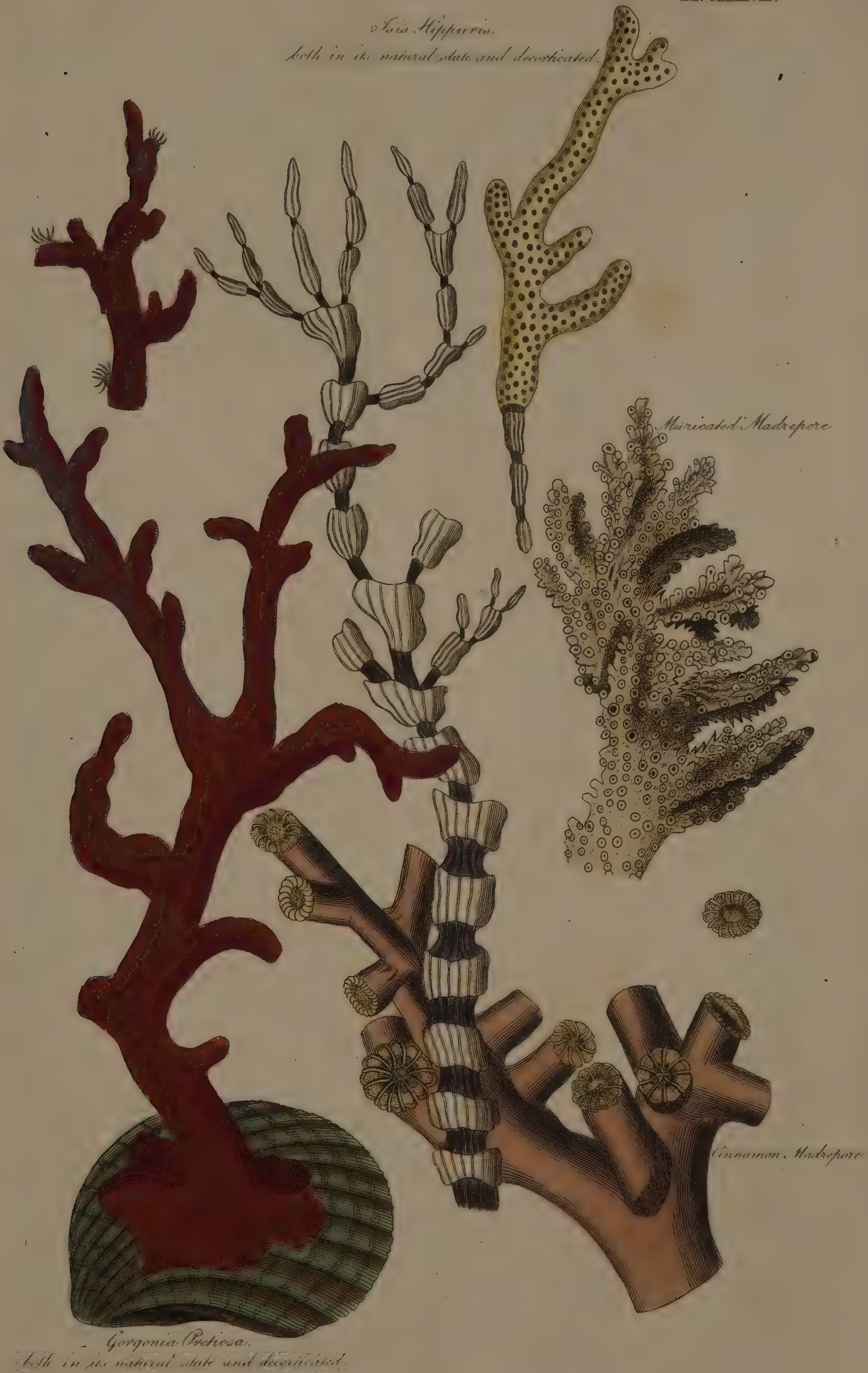
London, Published by Sherwood & Co. Paternoster Row, April 1st 1812.

Helmintholithi, Fossil Zoophytes.



Specimens of Alcyonites, found loose in Lime Stone!

Published by Sherwood & Co. Paternoster Row, Nov. 1, 1811.


Isis Hippuris.
both in its natural state and decorticated.
Muricated Madrepore
Cinnamon Madrepore
Gorgonia Pretiosa.
both in its natural state and decorticated.

London, Published by Sherwood & Co. Paternoster Row, Jany 1, 1813.

habitants are Roman catholics, and remarkable for their beauty, courtesy, and hospitality; yet they are held to be the most restless people in Swisserland. The government is democratic, and exceedingly complicated. The supreme power resides in the inhabitants of the four districts of Zug, Bar, Egeri, and Meutzingen.

Zug, a town of Swisserland, capital of a canton of the same name; seated on a beautiful lake, in a fertile valley, abounding with corn, pasture, and wood. In 1435, a street which was on the side of the lake was swallowed up. There are several handsome churches, and a good townhouse. It is remarkable, that Oswald, a Saxon king of Northumberland, in the seventh century, is the tutelar saint of this place. Zug is 12 miles N.E. of Lucern, and 42 S.E. of Basil. Lon. 8. 16 E. Lat. 47. 10 N.

ZUIDER-ZEE, a great bay of the German ocean, which extends from S. to N. in the United Provinces, between Friesland, Overyssel, Guelderland, and Holland.

ZUILLICHAU, a town of Silesia, in the province of Crossen, 16 miles N.E. of Crossen. Lon. 16. 12 E. Lat. 52. 12 N.

ZUINGLIUS, or Zuingle (Ulric), a zealous reformer, born at Wildhausen, in 1487. While he officiated as preacher at Zurich, he declaimed against the church of Rome and its indulgences, and effected the same separation for Swisserland from the papal dominion which Luther had for Saxony. Zuinglius proceeded with great moderation in his reform, by which he obtained the concurrence of the civil power to his measures. He procured two assemblies to be called at Zurich; by the first he was authorised to proceed, and by the second the ceremonies of the church of Rome were abolished. During these transactions he published several books, one of which, treating of the Eucharist, called forth the dissent and opposition of Luther, and some of the other reformers. Zuinglius's opinions on this subject have been generally thought more analogous to Scripture than those of Luther; and have accordingly been adopted, not only by the British churches, but by many on the continent. This great man fell, in the field of battle, October 11, 1531, when, according to the ancient custom of the inhabitants of Zurich, he, as chief magistrate, led on his countrymen to action. Except on the subject of the sacrament, there was no material difference between Zuinglius and Luther. See Mr. Bower's valuable Life of Luther, just published, pp. 247, 257, 328, &c. See also the Memoirs of Zuinglius, lately published by Dr. Aikin.

ZULPICH, or Zulch, a town of Germany, in the duchy of Juliers, belonging to the archbishop of Cologne. It is seated on the Nassel, 10 miles S. of Juliers, and 10 W. of Bonn. Lon. 6. 40 E. Lat. 50. 46 N.

ZURICH, a canton of Swisserland, 50 miles long, and 30 broad; bounded on the N. by Schaffhausen, E. by Thurgaw and the county of Tockenburg, S. by Glaris, Schweitz, and Zug, and W. by Lucern and the county of Baden. Zurich was admitted a member of the Helvetic confederacy, in 1351, and obtained the privilege of being the first canton in rank; it is also the most considerable in extent, both of territory and power, next to that of Bern. It abounds in wine and excellent pasture; but as there is not a sufficient supply of corn for interior consumption, the deficiency is chiefly supplied from Suabia. The inhabitants are all Calvinists; and two-thirds of them derive their livelihood by spinning thread and silk, and making linen for the manufacture of the town.

Zurich, a city of Swisserland, capital of a canton of the same name. It stands at the N. end of the lake Zurich, where the river Limmat issues from the lake, and divides the town into two unequal parts, which communicate by three bridges. It was formerly an imperial city, and is one of the best built in this country, but the streets are narrow. The cathedral was founded by Charlemagne, and is adorned with a statue of that emperor. Zurich was the first town in Swisserland that separated from the church of Rome, being converted by the arguments of Zuinglius, in 1517. The two divisions of Zurich are called the old town and the suburbs: the former is surrounded by the same battlements and towers that existed in the 13th century; the latter is strengthened by fortifications in the modern style. The arsenal is well supplied with cannon and ammunition, and contains muskets for 30,000 men. Among the charitable foundations are an orphan-house; an hospital for the sick of all nations, which usually contains above 600 patients; and the Almosen Amt, or foundation for the poor, which puts out children as apprentices, and distributes money, clothes, and books of devotion, to poor persons, not of the town only, but of the canton, to the amount of upward of 5000*l.* a year. Here are several manufactures; particularly muslins, cottons, linens, and silk handkerchiefs. Zurich was taken by the French in 1798, and retaken by the Austrians the year following; but the latter were soon obliged to evacuate it, on the French gaining a decisive victory over the Austro-Russian army near this city. It is 35 miles S.W. of Constance, and 55 N.E. of Bern. Lon. 8. 35 E. Lat. 47. 12 N.

Zurich, a lake of Swisserland, near ten leagues in length, and one in breadth. The borders are studded thickly with villages and towns, and the south part appears bounded by the stupendous high mountains of Schweitz and Glarus: the scenery is picturesque, lively, and diversified. The river Limmat runs through the whole length of this lake to the city of Zurich.

ZURITA, a town of Spain, in Old Castile, with a castle, seated on the Tajo, very near Toledo. Lon. 3. 17 W. Lat. 39. 50 N.

ZURZACH, a town of Swisserland, in the county of Baden, remarkable for two fairs much frequented by the merchants of Germany and France. It is seated on the Rhine, just above the junction of the Aar with that river.

ZUTPHEN, a county of the United Provinces, in Guelderland; bounded on the N. by the Yssel, which separates it from Velaw, on the W. by Overyssel, on the E. by the bishopric of Munster, and on the S. by the duchy of Cleves.

Zutphen, a strong and considerable town of Dutch Guelderland, capital of a county of the same name. It was taken, in 1672, by the French, who restored it in 1674. It is seated at the confluence of the Berkel and Yssel, nine miles S. by E. of Deventer, and 55 E. by S. of Amsterdam. Lon. 6. 0 E. Lat. 52. 10 N.

ZUYST, a village of Holland, five miles from Utrecht. It abounds in plantations and shady walks, and is greatly ornamented by the spacious buildings which count Zinzendorf appropriated to the fraternity of Hernhuthers or Moravians. The brethren are employed in various kinds of manufacture, and their workmanship far exceeds that of any other part of Holland; but the articles are proportionably dearer. Zuyst is much frequented in the summer months, by merchants who have no country seats of their own.

ZWICKAU, a town of Upper Saxony, in Misnia, on the frontiers of Voigtland, with a citadel, three churches, and a Latin school, in which is a good library. Here are manufactures of cloth and leather, and a trade in corn and beer. It is seated on the Mulda, 20 miles N.N.E. of Plauen, and 21 S. of Altenburg. Lon. 12. 28 E. Lat. 50. 42 N.

ZWINGERA, in botany, a genus of the class decandria, order monogynia. Calyx five-parted; petals five; filaments dilated and hairy at the base; capsules five, coriaceous, one-seeded, inserted on a fleshy receptacle. One species; a Guiana shrub, eight feet high, with oblong, emarginate leaflets.

ZWOLL, a fortified town of Holland, in Overyssel, with three handsome suburbs. On the adjacent mountain of St. Agnes was formerly an Augustine convent, in which Thomas Kempis lived 71 years, and died in 1471. A canal begins near this place, and extends to the river Yssel, which is defended by several forts. Zwoll is the most opulent town in the province, and stands on an eminence, on the river Aa, 14 miles N. of Deventer, and 31 S.W. of Coevorden. Lon. 6. 3 E. Lat. 52. 31 N.

ZYGÆNA, in the entomology of Fabricius, a tribe of the lepidopterous genus Sphinx, which see.

ZYGIA, in zoology, a genus of the class insecta, order coleoptera. Antennas moniliform; feelers equal, filiform; lip elongated, membranaceous; jaw one-toothed. One species only, zygia oblonga. Head and shells dull blue; thorax rounded, emarginate, punctured, carinate; inhabits the East; middle-sized, oblong, rufous.

ZYGETH, a strong town of Lower Hungary, capital of a county of the same name, with a citadel. It was besieged, in 1566, by Solyman II. emperor of the Turks, and taken three days after his death; but was afterward retaken by the Austrians. It is seated in a morass, made by the river Alma, 50 miles N.W. of Esseck. Lon. 18. 58 E. Lat. 46. 17 N.

ZYGOMA. (from ζυγος, a yoke; because it transmits the tendon of the temporal muscle like a yoke.) The cavity under the zygomatic process of the temporal bone and os malæ.

ZYGOMATIC PROCESS. An apophysis of the os jugale and another of the temporal bone are so called. See Anatomy.

Zygomatic suture. Sutura zygomatica. The union of the zygomatic process of the temporal bone, to the cheek bone.

ZYGOPHYLLUM. Bean-caper. In botany, a genus of the class decandria, order monogynia. Calyx five-leaved; petals five; nectary ten-leaved, covering the germ; stamens seated on the germ; capsule five-celled. Fourteen species; natives of the East or West Indies, or the Cape. The following are cultivated.

1. Z. fabago. Common bean-caper.
2. Z. sessifolium. African bean-caper.
3. Z. morgsana. Purslane-leaved Ethiopian bean-caper.
4. Z. spinosum. Thorny bean-caper.
5. Z. album. White Egyptian bean-caper.

The first is herbaceous, and should be propagated by seeds; the rest are shrubs or undershrubs, and may be increased by seeds or cuttings.

ZYMOSIMETER. (formed from ζυμωσις, fermentation, and μετρον, measure.) An instrument proposed by Swammerdam in his book De Respiratione, wherewith to measure the degree of fermentation occasioned by the mixture of different matters, and the degree of heat which those matters acquire in fermenting, as also the heat or temperament of the blood of animals.

ZYPÆUS (or Vanden Zyp, Francis), a learned man, born at Malines in 1580. His talents recommended him to the bishop of Antwerp, who appointed him his secretary, canon, and archdeacon of his church. He died in 1650, aged 75. He wrote, 1. Analytica enarratio juris Pontificii novi. 2. Consultationes Canonicæ. 3. Notitiæ Juris Belgici. 4. De Jurisdictione Ecclesiastica & Civili.

ZYTHUS. (from ζεω, to ferment.) Beer; ale; any drink made of fermented corn.

ZYTOMIERZ, a town of Poland, in Volhinia, seated on the Ciecirief, 70 miles W. of Kiof, and 120 E. of Lucko. Lon. 29. 22 E. Lat. 50. 35 N.

ADDENDA ET CORRIGENDA.

ARDESIA, in mineralogy. Argillaceous schist. Slate. Argillate. Thonschiefer. A genus of the class earths, order argillaceous. Consisting of alumina and silica, with generally a little oxyd of iron and carbonat of lime, and sometimes some magnesia and petroleum; soft, of a slaty texture, generally breaking into discoid fragments; opake, of a common form, imbibing water, but so slowly as not to be softened; when moistened exhaling an argillaceous odour; not effervescing with nitric acid; melting into a turbid scoria by a considerable degree of heat. Found in primitive as well as stratified mountains, and when in the former, of a greasy lustre; constituting entire mountains, or their principal part. Eleven species, as follow.

1. A. novacula. Novaculite. Whetstone. Turkey-stone. A little polished, shining within, subopake, hardish, greenish-grey, making a whitish mark. Found in schistose mountains, forming considerable layers, chiefly in the Levant, near Lauestein in Bareith, Siberia, and near Freyburg in Saxony. Fracture slaty, approaching to shivery: does not adhere to the tongue; receives an imperfect polish, hardens in the air and in oil, and when saturated with the latter makes an excellent whetstone.

2. A. tegularis. Proper argillite. Common argillaceous schist or slate. A little polished, rather hard, blueish-black, with a cinereous streak, with straight foliations.

This admits of many varieties: reddish, or brownish-red; purple; reddish-purple; greenish-grey. Chiefly used for the covering of houses. Found in many mountains of Britain, and in Europe generally.

3. A. nigrica. Soft black schist, or slate. Black chalk. Deep black, meagre, very soft, soiling the fingers, making a black streak, of an incurved slaty texture, breaking into discoid fragments or long splinters, becoming reddish-grey in the fire. This, and the two preceding, we have noticed more at length under the article SCHIST, to which the reader may turn for further particulars.

4. A. tabularis. Tabular schist or slate. A little polished, soft, greyish-black, making a whitish mark, with straight foliations. Found in Switzerland, Hungary, Franconia, and Saxony: admits an imperfect polish, and is sometimes variegated with darker orbicular or oblong spots; when powdered effervesces in a very slight degree with nitric acid; is rather light, and is used for tables and slates.

5. A. solida. Hard solid thonschiefer or slate. Blackish, of a compact slaty texture, giving a clear sound when struck, making a cinereous streak. Found in Sweden, Spain, and New Spain; of a shivery fracture, and a blackish, brown, grey, or reddish colour.

6. A. compactissima. Compact thonschiefer or slate. Of a dull colour, very compact and solid, hardish, leaving a whitish streak. Found very rarely in China; black or brown, exteriorly glabrous and unequal, internally very compact.

7. A. atrata. Of a lamellar, slaty texture, very soft, making a whitish streak. Found in Lapland and various provinces of Sweden, meagre, blackish, brown, or yellowish; crackling when stirred in the fire, and running into a frothy kind of glass in a greater degree of heat, effervescing a little with nitric acid when powdered.

8. A. undulata. Black, of an undulately slaty texture. Found in Finland and Jemsia, sometimes softer, and melting into porous slugs; sometimes a little harder, and melting into a solid glass.

9. A. bituminosa. Bituminous schist. Very soft, a little greasy, of a dull colour, shining when rubbed, leaving a black streak, of a straight slaty texture, breaking into discoid fragments, smoking or flaming in the fire, and at the same time becoming paler. Several varieties. Found in Britain, Sweden, and Lusatia, forming large beds in stratified mountains, and strongly impregnated with bitumen and sulphur pyrite: colour generally black; a little glittering when broken.

10. A. kellas. Killas. Graywacke. Of a fibrous texture, slightly adhering to the tongue. Found in Cornwall, of a pale blueish-grey, red, or whitish-yellow colour, and often intersected with veins of copper or tin: surface undulated; fracture long, splintery, imperfectly slaty, lustre opake, silky.

11. A. tessuralis. Rhombic slate. Very soft, somewhat ponderous, breaking into trapezoid fragments of a slaty texture. Found in Silesia, near Goldburg, and Neudorf, forming entire mountains, of a brown, pale yellow, or green colour.

DRACÆNA, in botany, a genus of the class hexandria, order monogynia; natural order sarmentaceæ. Calyxless; corol six-petalled, oblong, somewhat upright, equal, cohering by the claws; stamens six; filaments inserted into the claws, subulate, thicker in the middle, membranaceous at the base, shorter than the corol; anthers oblong, incumbent; pistil an ovate germ, six-striated; style filiform, of the length of the stamens; stigma three-cleft, obtuse; receptacle an ovate berry, six-furrowed, three-celled; seeds solitary, ovate-oblong, incurved at the tip. Five species, as follows.

1. D. draco. Dragon-tree.
2. D. ferrea. Purple dracæna.
3. D. ensifolia. Sword-leaved dracæna.
4. D. marginata. Olive-leaved dracæna.
5. D. borealis. Oval-leaved dracæna.

Of these the third, dracæna ensifolia, or sword-leaved dracæna, is most worthy of notice. It has a perennial root, horizontal, creeping, somewhat woody, odoriferous, and simple. The root-leaves heaped, thick, striated, shining, reflex, sword-shaped, a foot long. Scape three feet high, leafy at bottom, naked at top, round, slender, declining; the flowers terminal, sub-umbelled, of a blue or white colour.

It is the dianella ensifolia of the Hortus Kewensis; and under this name will be found in Nat. Hist. Pl. CLXXV.

ZIRCON, in mineralogy, an earth, so called from the metal of the same name. This earth was first discovered by Klaproth, and its leading properties have since been carefully investigated by Vauquelin. It is obtained from the metallic zircon, jargon, or hyacinth, by the following process. The mineral being very accurately pulverized is to be mixed with six times its weight of perfectly caustic potash dissolved in a little water. The mass being evaporated to dryness in a silver crucible is to be kept in a low red heat for two hours: after this being allowed to cool, it will be found strongly adherent to the crucible, and must accordingly be covered by ten or twelve times its weight of water, to which must then be added a sufficiency of muriatic acid in order to supersaturate the alkali. By a gentle digestion the whole of the mass will be dissolved, and the clear solution is to be evaporated slowly to dryness, stirring it about all the time to facilitate the separation of the silex. The residue of the evaporation is now to be digested with a moderate quantity of water slightly acidulated by muriatic acid, which will take up the zircon and oxyd of iron, leaving the silex behind. This evaporation and resolution in very dilute muriatic acid is to be repeated two or three times, that every particle of silex may be separated. To the muriatic solution is now to be added carbonat of ammonia, which will at first occasion an abundant precipitate, but by adding an excess of the alkali the whole of the zircon will be redissolved, and the oxyd of iron will fall to the bottom. The clear filtered liquor is to be boiled for two or three hours, by which the excess of ammonia will be driven off, and the zircon will be deposited in the state of carbonat, and in the form of a white powder. This powder being washed and properly dried is afterwards to be calcined, by which 4.3 per cent. of water and carbonic acid will be driven off, the remainder being pure zircon.

Calcined zircon is of a white colour, rough to the touch, insipid, and insoluble in water: specific gravity 4.3. After being exposed to an intense heat in a charcoal crucible it acquires a grey colour, a vitreous fracture, and is hard enough to give fire with steel. Nitric acid easily combines with it: muriatic acid takes it up from the carbonat, but does not touch it after it has been calcined. It is insoluble in water and alcohol, and by evaporation may be obtained in needle-shaped crystals. It is insoluble in the moist way by the fixed alkalies either caustic or carbonated, but is taken up by carbonated ammonia. In its affinities for the acids it is decidedly inferior to the alkalies, the alkaline earths, and even to alumine. Neither the earth nor its salts are made any use of.

THE END.

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